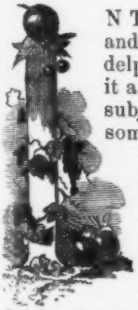
New Method of Constructing Vineries.



N THE *Gardener's Monthly* for February we find an intelligent and interesting article with this heading, by Mr. Bright, of Philadelphia. We esteem the subject of the first importance, and give it a prominent place. While endorsing Mr. Bright's views on the subject of inside borders for graperies, we think we can throw some additional light on it. He has gone somewhat fully over the subject, and we shall not therefore go into detail until such time as we can get our drawings from the engraver, without which the subject cannot be thoroughly understood.

It is now about thirteen years since we first gave our attention to inside borders for graperies, being led thereto by the manifest absurdity of growing the vine, especially in forcing-houses, under two opposite conditions, the head being inside, and the root outside the house; in all such cases, however, we found the law of compensations silently recognized by covering the border outside with several feet of coarse manure, to give warmth to the roots, but at the expense of cutting them off mostly from atmospheric influences. For some time before this we had regarded thirty feet outside borders as a great mistake, to say the least; and we were confirmed in this by our experience in growing the grape and the pear in pots, this having been the mode in which we first grew these interesting horticultural subjects. We were further confirmed in this view by subsequently seeing a grapery, one end of the outside border of which only allowed a width of some six feet for the roots to ramble in; and this end of the house uniformly produced the best grapes. A friend being about erecting a small grapery some time after this, (now nearly eleven years ago,) we induced him, after a great deal of persuasion, to put his borders on the inside; and that house always more than realized the anticipations that were formed when it was put up. Some years after this we brought the subject before the New York Horticultural Society at one of its conversational meetings, but it failed to arouse any interest among professional gardeners, and they seemed to be of opinion that a departure from the "good old ways" could not be initiated by an amateur. In fact, we have never mentioned the subject in presence of a professional man, with but a few rare exceptions, either before or since, without being convinced that he regarded the idea as an absurdity; and we are therefore especially glad that a professional man himself has at last taken hold of the subject in good earnest.

About five years since we published an article (editorial) on this subject in the *National Magazine*, stating where vineries of this description could be seen in successful operation; but that magazine did not reach a class of readers likely to be much interested in such subjects, and the article probably failed of any effect. We, however, from the beginning have talked of the subject among our friends, and have induced several of them from time to time to erect vineries on this principle, and we know of no case in which they have not given the fullest satisfaction. Our own experience is decisive as regards us personally. If we had a thousand graperies to construct for

our own use, they should be constructed in no other way. The principle has become established in our mind as the best of which we yet have any knowledge. Houses upon this principle have been in operation around New York for eight or ten years past, and the principle has thus been tested by time, and Mr. Bright will no doubt be glad to learn that its success has been all that he could wish for. There is one modification, however, which we should mention. Mr. Bright builds a wall inside the house to secure a circulation around the border, and as a security, also, against any possible influence of the outside atmosphere. In all our plans, except one, we have built a double hollow wall four or five feet deep; his plan probably secures the object aimed at more fully, but at greater expense; but of this we do not feel fully assured. Mr. Bright also secures an air passage under his borders, and at the same time thorough drainage. We regard thorough drainage as indispensable, but secure it in a simpler way. These are the two points in which Mr. Bright's plan differs from ours. We claim for the new mode all the advantages that Mr. Bright claims, and more. The house, vines, &c., are not only more under control, and the expense of outside border saved, but the general labor and expense are considerably lessened, and the vines are more uniformly healthy and vigorous; this is equally true, whether of a forcing-house or a cold vinery. In the latter, we claim for the new mode this additional advantage, that the crop of grapes will ripen, under proper management, some *ten days earlier* than under the old system.

In regard to the subdivision of the inside border, we know the advantages to be pretty nearly all that Mr. Bright claims. It gives us a special control over each vine as to manuring, stimulating, replanting, &c., objects sometimes of no little importance. Without, however, going into further detail at present, we will just allude to a friend's grapery, erected in accordance with our suggestions, in which both of the above principles are carried to an extreme. The border is not only made inside the house, but it is *five feet beneath the outside ground level*, and the back border is divided into sections even smaller than those named by Mr. Bright. The width of the house is only thirteen feet. This vinery has been in operation about seven years; the crops are very fine, and the results are in all respects highly satisfactory to the owner. The vines are fruited the whole length of the rafter, and a new shoot laid in each year from top to bottom, the old one being entirely cut out at each pruning. Of this house and some others we shall hereafter give illustrations. In the mean time, we are at liberty to say, that the owner will be glad to show it to any of our readers who may desire to see it.

PROPAGATION OF PLANTS BY CUTTINGS.

BY W. S.

(*Continued from page* 60.)

Management of Cuttings continued.—As remarked in a previous number, there is a certain state of maturity in all plants, at which period they can most readily be propagated. Some emit roots from young growths if simply thrown in a warm, damp atmosphere; others, again, are easily increased from cuttings of matured wood; experiment only can decide the

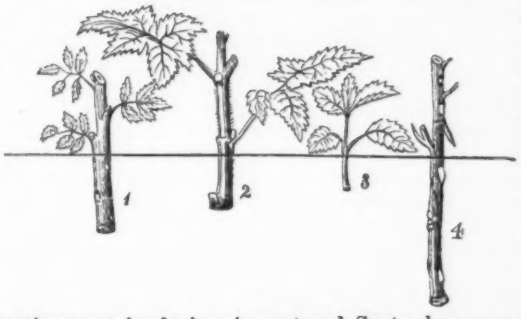
best mode of proceeding with new plants; although certain tribes, as the willow, will sufficiently indicate, by their alliance, the mode of treatment, yet no rule can be formed that will be general, as some individuals of a family may be rapidly propagated, while others are extremely difficult of increase.

The more succulent the cuttings, the more carefully must the agencies of growth be balanced; if subjected to aridity their contained moisture will be evaporated; hence it is necessary that their surrounding atmosphere should be so supplied with moisture as to prevent evaporation. In practice, various expedients may be adopted; close-fitting frames, or houses where extensive propagation is required; and small quantities may be isolated from external changes of atmosphere by covering with glasses; cone-shaped or bell glasses are frequently used in thus protecting cuttings in pots. The same conditions may be secured by placing a flat piece of glass over the mouth of the pot, sufficient space being left for the cuttings between the soil and the glass.

Light in excess is equally injurious, and its results are somewhat similar in effect to those produced by aridity; a slight shading from bright sun is required, just sufficient to prevent the leaves from wilting, gradually removing it as roots are formed.

The necessity of preserving a uniform degree of moisture in the soil has been alluded to. An excess will cause speedy decomposition; if more water is absorbed than the leaves require, they become of a yellowish color, and the base of the cutting will assume a dark and decayed appearance, a sure sign of failure.

Such are the general principles for our guidance in this method of propagation; but in order to illustrate more clearly the care required with different kinds of cuttings, the accompanying figures are introduced. No. 1 may be considered a representation of a rose cutting made from part of a flowering shoot, after the blossoms fade and the wood approaches maturity. There is a considerable portion of accumulated alimentary matter in the branch, and since all its parts are comparatively matured, there will not be much to lose by surface evaporation. Such a cutting will root in the open air, without any covering or protection, if planted where the mid-day sun will not shine on it. And it may be remarked in passing, that rose cuttings put in during August and September on a sandy, shaded border, will root without much further care. No. 2 is a fair representation of a Pelargonium cutting in August; at that season the growth is matured, and leaves comparatively inactive. In a somewhat shaded situation in the open air, cuttings of these plants, taken as in the figure, will root very successfully; they may even be planted in a situation fully exposed to the sun,



provided that a slight shading be afforded for a week or ten days in bright weather. No. 3 represents a young shoot taken from a plant in full vigor of growth; and many plants will root most readily when the shoots are in this condition. In this case the greatest care is required; every part of it is soft, succulent, and immature; the careful retention of the leaves is most important, as upon their preservation the root-forming process depends; at the same time, they are not to be excited into active growth, but must be retarded in a comparatively cool atmosphere, while the soil in which they are placed should be warmed. The air surrounding the leaves must be kept moist to prevent evaporation from their surfaces; shading will also be necessary to prevent rapid decomposition of the gases in their structural formation, and the soil should not be saturated with water, or the succulent stems will decay; at the same time, sufficient moisture should be present to supply absorption, and the more completely these conditions are secured, the greater the certainty of success. No. 4 is a cutting of gooseberry, made of young wood after growth has matured. Currants, grapes, and many other deciduous plants are propagated in this way. Here there is no foliage to exhaust the cutting, and it may therefore be placed out in full exposure at once. The portion inserted in the soil will be amply sufficient to absorb a supply of moisture equal to the loss by evaporation from the exposed surface.

The best time to plant cuttings of this description is in early fall, as soon as the leaves fade, or even before that, if the wood is matured. Selecting a well-drained soil, the cuttings are inserted; the warmth of the ground during October will excite root growth, and many of them will form roots before winter sets in. To prevent heaving by frost, (which, however, will rarely occur to an injurious extent in drained soil,) a covering of leaves or strawy manure should be placed between the rows as a protection; cuttings of this kind, planted in early fall, will gain a season's growth over those inserted during the following spring.

Various methods are adopted to secure the conditions required, in order to propagate by cuttings. Those who have extensive requirements usually have a structure on purpose, where bottom heat is procured by means of hot water in pipes or tanks, of which there are many modifications. Those who have a greenhouse may form a suitable propagating shelf by inclosing a portion of the heating channel, whether flue or pipes, at the warmest end, so as to form a tight chamber, with the heater running through it. Usually there is a front shelf in greenhouses, over the heating apparatus, so that by simply inclosing a space below it a bottom heat can be secured. Ventilators should be provided; some close to the floor of the house, others higher up, so that the heat may be used in the atmosphere of the house when necessary. For all ordinary purposes this arrangement is amply sufficient, and much may be done in a small space of this kind, under proper management.

Frames, or hotbeds, afford a suitable arrangement; much care, however, is required to keep the heat at a proper medium. Where fermenting or decomposing materials are the source of heat, damp is the greatest cause of failure in these hot frames, proceeding from the decay of the manure. Leaves decay slowly, so that a more mild, uniform, and lasting heat will be produced by mixed leaves and manure, than by manure alone.

The Waltonian case, figured and described in a former volume of the

Horticulturist, is admirably arranged for propagating; the cuttings are inserted in sand over a pan of water heated by a lamp when necessary. There have been various modifications of this case made of late years; one exhibited before the Pennsylvania Horticultural Society, which received the name of "The Plantarium," is a useful stand for plants in sitting-rooms; and by a slight alteration, would be exceedingly well adapted for propagating delicate rooting plants.

Cuttings may be safely transmitted to a great distance in hermetically sealed glass bottles; they have grown after being several weeks so packed. A very little water is placed in the bottle.

EVER-BEARING MULBERRIES.

BY WM. R. PRINCE, FLUSHING, L. I.

There are now three varieties of ever-bearing mulberries presented to us for selection or for general adoption.

Downing's Ever-bearing is a seedling of the Multicaulis, which it resembles in wood and foliage. It is therefore necessarily somewhat tender, and not suited to a more northern climate. Mr. D. has given us an ample description of its fruit in his "Fruit-Trees of America," and merits much credit for originating so excellent a fruit.

Herbemont's or Hicks's Ever-bearing is a much hardier variety, and superior to the preceding in size and quality of its fruit, which is produced during a considerably larger period of time. It is a prodigious bearer; the berries are usually nearly two inches in length, sweet and delicious. At the South the fruit continues ripening from the 25th of April until the 15th of August, and here at the North the crop extends to a late period in the autumn. This tree has dark red wood and indented leaves, very distinct from Downing's.

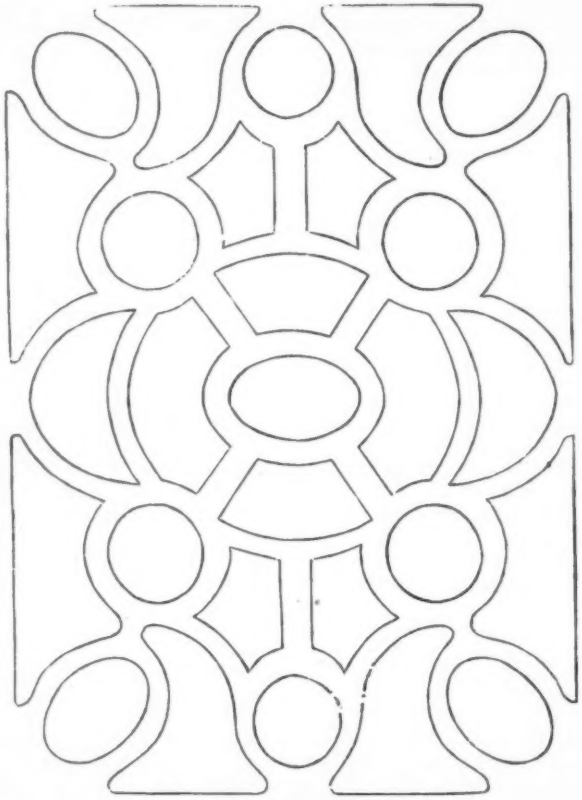
White Ever-bearing, sweet berries, partakes considerably of the character of the White Italian. It grows vigorously, and yields immense quantities of fruit.

PLAN OF A FLOWER-GARDEN.

BY M. COLEMAN, NEW ROCHELLE, N. Y.

Now that the crocus and the snowdrops, the gay harbingers of spring, decorate our gardens with their chaste, simple flowers, and the warblers of more favored climes begin to greet us with their cheering songs, is a proper time to talk of flowers and flower-gardens. A tasteful garden should, during the summer months, present a mass of either flowers or foliage, which can readily be obtained by introducing nothing but constant blooming plants. Plants with variegated and handsome foliage should also be freely introduced. Verbenas, Heliotropes, and Petunias of straggling growth, if not already cut back, should now be attended to, and plunged in a gentle hot-bed to encourage new growth. Straggling shoots of Geraniums and other bedding plants should also be shortened, to encourage new growth near the surface.

Flower-gardens of whatever kind, should be properly laid down at their formation with regular-sized beds, ample path room, and, if a geometrical one, permanent box edgings. The annexed plan was designed and laid down by me in the grouds of A. P. Cumings, Esq., near Mamaroneck, N. Y. It has given so much satisfaction to numerous visitors, that I am induced to make this drawing for the readers of the HORTICULTURIST. Complicated and



PLAN OF A FLOWER-GARDEN.

intricate drawings deter many from adopting them ; the above is free from all such objections ; it is simple in its whole arrangement, and comprises twenty-nine beds, sufficiently large for all practical purposes, and pleasant winding walks, altogether exempt from formal and right lines, too common in geometrical plans.

Here a lover of flowers can display a large collection to the best advantage, planting but one sort in each bed, and, for having a good effect,

properly intermixing the colors. What would be more pleasing to a rose amateur than such a garden filled with tea and other Roses that bloom the whole season, and kept dwarf by pegging down the exuberant shoots? The above plan, as laid down, is surrounded with a walk and border for annuals and mixed flowers, not shown in the drawing.

A HOME IN THE COUNTRY.—No. III.

BY M., SOUTH ORANGE, N. J.

(*Continued from p.* 109.)

In planting the ornamental grounds about our home in the country, let us remember that we are seeking *variety in unity*. Contrasts, then, are admissible, and often desirable, but incongruity is to be avoided. We wish to collect about us as much and as various forms of beauty as possible, and to arrange them harmoniously, so that they will form a beautiful whole. Each object must be so introduced that it will not only present to good advantage its own beauty, but also will not detract from, but, on the contrary, enhance the beauty of surrounding objects.

It will be convenient to present a few hints on this subject, in detached paragraphs, as they occur to me, without any careful attempt to arrange them in the order of their importance.

1. Avoid dotting your grounds all over with trees set at about equal distances one from the other. The effect of such planting is tame and pointless; there is no variety to it.

2. Plant mostly in groups and masses. By a *group* I mean a small number of trees planted near together, at irregular distances, so that they may be said to form one object, although each tree still preserves, to some extent, its own individuality. A *mass* is a larger number of trees, planted yet more closely, so that the individuality of each tree is lost. It is evident that there is room for endless variety in the construction of groups. They may vary in the number and position, as well as description of their trees.

3. Do not generally plant many kinds of trees or shrubs in a single group, and when two or three kinds are so planted, be careful that they are such as will harmonize; such as are not too opposite in their general characteristics. If you have five groups, each containing one each of five particular kinds of trees, your groups are in this just alike, and so lack variety.

4. Avoid regularity, such as planting in squares, circles, or other set figures; or so that the trees are equally distant one from another.

5. So arrange your groups and masses as not to intercept interesting views of the surrounding landscape; also, so as to hide objects which are not attractive. One of the first things to be done, then, in planning your planting, is, to determine which views you wish to preserve, and which to exclude.

6. Do not plant too near together. Remember, that "Tall oaks from little acorns grow," and that the diminutive plants you are arranging are to become large trees. True, you might cut down a portion as they become too large, but it is hard work to order the removal of a thrifty tree, the growth of which you have been watching for years; and so, when planted too closely, trees are often permitted to grow until very much crowded and injured.

7. Avoid the temptation to use evergreens too freely. It is true that "they are green all the year round," but they are more stiff, formal, and gloomy than deciduous trees.

8. In arranging a group, let the tallest growing trees or shrubs be generally (not always) towards the centre of the group, and the smaller ones on the outside.

9. You will save yourself some disappointment and vexation if you are careful to plant only hardy trees and shrubs, remembering that not all which are so classed in the catalogues are really hardy. It is vexatious to see some of your most prized trees cut down by the winter. As to protecting them with straw, screens, barrels, &c., this is not always effectual; and it is like the fashion which young ladies have of putting their hair in curl-papers, thus making frights of themselves for half the day, that they may have a little more fancied beauty for the other half!

10. Too many trees in immediate proximity to the house are to be avoided on the score of health. It is not healthy to live too much in the shade.

11. Evergreens may be planted so as to serve a useful purpose in sheltering from the cold winds, which, with us, come from the north and north-west. They are also the best to use as screens to hide disagreeable objects, because they are effectual at all seasons of the year.

12. The free use of shrubs, of which the variety is now great, and of smaller trees, will tend to increase the apparent extent of your grounds. We unconsciously judge such things by comparisons.

A word on that trite subject, "How to transplant a tree;" and as, in order to determine how to do a thing it is well to know just what the thing to be done is, let us put it in words, that the object is, to remove the tree from one place to another, keeping it as nearly in its present condition as possible. If, therefore, it be practicable to take up the tree with so large a ball of earth that its roots will be entirely uninjured, all that is necessary is, to deposit it in its new place, and it will experience no check in its growth. This is not commonly practicable, however, but we must come as near to it as possible. Dig up the tree carefully, take it up tenderly; do not break or bruise the roots, or suffer them to dry, for this is death to them. Put the roots into their new place as nearly as possible in their natural position—that is, in the position they were in before. This is the whole secret. It is only necessary to remember, that the roots of a tree are very delicate things. They will live a little longer out of the ground, or some substitute, than a fish will out of water, but not much. As to their texture, some of them are scarcely coarser or stronger than cobwebs. Consequently, with all our care, we cannot avoid injuring them considerably, and therefore it is necessary to remove a portion of their branches, for the top is supported by the roots, and if the latter are diminished the former must be also.

Reflect, then, upon what is the present position of the roots of the tree you are about to move; their frailty; how they are spread out and separated, one scarcely ever touching another; how the earth lies closely around them;—remember these things, and you will not need to be told how to go to work to move a tree.

In deciding upon the location and arrangement of groups, a number of poles, of different lengths, will be of assistance. By setting them up in the places where you design to put the trees, you will be assisted in imagining what will be the appearance of the group when completed.

By planting large-growing trees on the top of a hill you will increase its boldness as a feature in the landscape. If, on the contrary, the valley be planted and the hill be left bare, the contrary effect is produced.

It is not my purpose to enumerate the kinds of trees to be employed. and the adaptations of each, but I would like to say a word for fruit-trees, which, it seems to me, may be successfully employed in ornamental planting more extensively than they are. It is curious to observe, by the way, how prone we are to regard everything which is useful as not adapted to ornament, and even to discard it in its ornamental capacity when we discover that it is useful. Thus, tomatoes were considered highly ornamental, and were cultivated in flower-gardens for their beauty until somebody discovered that they were eatable, when they were turned out of the parlor into the kitchen at once, and one would almost as soon expect to see a bed of onions in the flower-garden now as tomatoes. Pear-trees, Cherries, Peaches, Apples, are well worth cultivation for their beauty alone. Indeed, we have few flowering trees that will compare with them. They are so useful, however, that few are willing to admit them into their strictly ornamental grounds; perhaps they are considered as *working-trees*, which produce something, and therefore occupy a lower grade in the social scale than the aristocratic trees which do nothing but dress themselves in fine clothes! Seriously, I suppose the objection to them is, that they are often stiff and ungraceful. This is not always so, and may be avoided by grouping and massing them with other suitable trees. Nature has used this plan with admirable effect in one case which comes under my immediate observation. Every spring I have renewed occasion to admire the superlative beauty of a thicket of Apples, Chestnuts, Hickories, Cherries, Oaks, with an under-growth of *Laurus benzoin*, and other shrubs.

THE USE OF CHARCOAL IN GROWING ROSES.

BY A. V., NEW HAVEN, CONN.

From various observations I have made on the use of charcoal in growing Roses, I am disposed to consider it of advantage, whether mixed with the soil in which the plants are grown, or used as a top-dressing. Dr. Gray, in his "Lessons in Botany," says that "carbon itself is a solid, and not at all dissolved by water; as such, therefore, it cannot be absorbed into the plant, however minute the particles." This is a plain statement, and may be regarded as expressing the opinion of scientific men on the subject. It is also believed, that although plants do not receive any of their carbon from charcoal, they are benefited by the use of it, inasmuch as it is an absorbent of the carbonic acid gas which is in the atmosphere, and thereby presenting it in a fit condition to be taken up by the rootlets in greater quantity than when it is not used.

There is another benefit, however, which it confers,—that of promoting a healthy condition of the roots, and by that means securing them in some measure against the attacks of parasitical fungi, an enemy which ought to be guarded against with the utmost care. The most of the readers of the Horticulturist who have had experience in growing Roses in pots can not but have observed, while planting them out in the spring, or in the fall when

lifting them, the roots of some of them covered with a white mould, or thread-like process, which is the ordinary way in which fungus manifests itself. And it is most destructive, living as it does upon the roots and tender spongioles, thereby incapacitating them from performing their proper functions, and ending in the disease and death of its victims, provided restorative means are not resorted to.

In addition to mixing a little in the soil with which to grow roses, I have for several years used it as a mulching for those growing in pots in the greenhouse, and have invariably been satisfied with the effects produced. From actual experiment, I have found that by using it in this way, the temperature of the mould in the pots is raised one degree above what it is in pots where it is not so applied. The gain of even one degree of heat at the roots of the plants, when it is an object to have them early in bloom, is so far advantageous, and more than equivalent to the labor and expense bestowed.

If mildew is caused, as Loudon somewhere remarks, by the temperature of the soil being greatly below that of the atmosphere in which the plants grow, any means which serve to increase the heat of the former, as in the case of charcoal, must be of benefit in protecting them from the attacks of that enemy. It is readily conceded that other causes may, and do, operate in producing the same effects, such as an undue supply of moisture at the roots of plants, while the surrounding atmosphere is comparatively dry, or the reverse. It is more than probable, however, that any material difference of temperature between the roots and the branches of a growing plant predisposes it to become mildewed.

In regard to the opinion entertained by some, that carbon acts beneficially in counteracting the injurious effects caused by the matter excreted from the roots of plants, little need be said, as there does not seem to be anything like positive proof that such exudations act injuriously in any case whatever; such, at least, is the conclusion arrived at by Prof. Gasparrini, after a series of carefully conducted experiments. At the same time, it is of undoubted benefit in decomposing the "decayed suckers and pilorhizas, and the numerous fibres which perish from natural and accidental causes," and thereby enabling the constituent elements of these to enter into other combinations, in which circumstance they may become food for the plants.

It may be remarked, in conclusion, that the result of my experience is, that when not using charcoal in growing Roses, they have been more or less subject to mildew, and the roots of the plants more apt to be injured by fungus, whereas, with the free use of that material they are not at all liable to be attacked. And, besides, when treated in this way the plants are remarkable for their freshness and beauty; the flowers are so much improved that they seem as though they had been

"Dipped in color's native well."

[We have used charcoal freely, especially in compost for pot plants, and fully endorse all that A. V. says. Charcoal, it is admitted, is not properly a manure; it is rather an absorbent or vehicle of manures, whether liquid or gaseous. We are not quite satisfied as to its specific mode of operation, but we know, that while it improves the soil mechanically, it is highly beneficial to all classes of plants. A. V.'s article should be carefully read.—Ed.]

INARCHING THE GRAPE-VINE.

BY A. N.

This age has often been most emphatically termed the age of improvement. Not only have men ceased to be contented with the quality of that which perfectly satisfied their fathers, but they desire to increase the quantity and to greatly hasten in its acquisition.

Travellers are not content to wait the slow progress of the stage coaches which contented our parents, but insist on express railway trains, and even then are envious of the words which are transmitted by the magnetic telegraph. In horticulture we are not content to await the gradual development of a plant or tree; but we must stimulate its growth and hasten forward its maturity, until we receive in three or four years those returns which satisfied our grandparents in forty.

It is this haste to develop the maturity and to obtain the most speedy returns which has made the dwarf pear so popular. It is this crowding the results of half a dozen seasons into one which has enabled those who plant a tree or set out a vine to do so with the well-grounded hope of enjoying the fruit of their labors; and now it has caused to be revived and brought again into notice that old and useful method of grafting, called inarching. Grafting by approach, or inarching, is the procuring of a union between two branches of separate plants while both branches are in connection with their own roots; in order that, after the union has become perfect, the part of one branch above the connection and of the other below it may be cut away, and the strength of the roots of the one plant go into the branch thus transferred from the other.

This inarching is an old and useful method of grafting, which promises to become an eminently useful practice among our amateurs and gardeners. It is desirable, wherever there is difficulty in securing union between the stock and scion, and especially desirable where a stock has such a tendency to bleed (as the grape has) that it rarely allows the scion to remain where placed, and loses sap enough to be often a serious detriment.

It has been practised for more than a hundred years in its various modifications, one of which is, by taking the branch and plunging the end in a jar of water; (as shown in the January number of the Horticulturist;) another is, by planting the end of the branch in the ground; another is, by planting the scion root in the ground; another, and the one which I recommend, is, the bringing the scion plant near the stock root, in a flower-pot, until the object is attained, and then removing the pot and transferring the plant to the open ground without disturbance of the root or check to the growth.

Inarching is valuable in greenhouses for the Lemon, Orange, Camellia, &c., &c.; and, in our lawns and shrubberies, there are some trees which can only be placed in desirable situations by this process.

Messrs. Bissell & Salter, of Rochester, N. Y., commenced practising it extensively upon their grape-vines in 1858, and with perfect success. It is also spoken of in the *Revue Horticole* of 1859, as copied into the January number of the Horticulturist, (as before stated.) In the *Year Book of the Farm and Garden* for 1860, published by A. M. Spangler, of Philadelphia, is a capital notice, and also in Moore's *Rural New Yorker* for January, 1860.

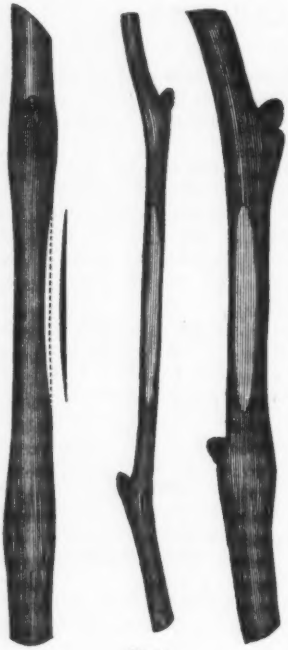


Fig. 1.

The operation, as practised upon the grape-vine, is as follows: Select a branch of the old vine of as nearly the size of the plant in the pot as possible. Place the pot in the earth at a suitable distance, as shown in figure 3. Remove a small section of the wood of each plant, cutting into the alburnum, as represented in figure 1. Fasten these together firmly, making the inner bark and wood coincide, as in common grafting. The union must be so close as to prevent any space between the two surfaces. Wind with grafting cloth, or with bass bark, or with soft cotton twist, as shown in figure 2, and secure the branches to a stake, so that they shall not be swayed by the wind. If the new vine had been growing in a small pot, it had better be re-potted into a larger pot, just before setting it in the earth; and this, if carefully done, need not disturb the roots, or check its growth in the slightest degree.

This can be done at any time in the year; but we prefer May or June, or when the new shoots of the old vine are about two or three inches long, and while the sap is most active.

It is advisable to gradually sever the connection of the plant in the pot below the junction, cutting it one-third across, and again, and again; thus gradually compelling the scion to receive all its sap from the new root. Union will generally be perfect in two or three months, and the severance of the scion below the junction and of the stock above is to be completed, so that the old root and the new vine are one. The pot is then removed with its vine, which can be transferred to the garden without the slightest disturbance of the roots, or the least check to its growth, even if done in midsummer.

Fig. 2.

The advantages of this process are, 1st. Union is more certain, because the scion remaining in contact with its own root is nourished by its own sap; neither dries nor decays, and remains in a fit condition for union until such time as it is perfected.

2. If union does not take place, all that has been done to the old vine has been the shaving of a small slice of the outer bark from a little place on one side, and all the loss to the vine in the pot is the damage of one or two of the top buds.

3. Risks are almost entirely removed by this mode, because the scion remaining in union with its own root is not in any danger, even if union with the old vine should not take place.

4. It converts an old and comparatively useless vine into a new sort, bestowing upon the recently introduced variety all the advantages of the aged, well-rooted, and long-established vine.

The whole process is a clear gain; because only the upper part of the new vine is used for scions, that part which would otherwise be pruned off by the good gardener; while the moment union is perfect you can remove the pot with the vine, and transfer it to the garden uninjured. In fact, this inarching is only another mode for the purchaser to get two vines in one, and fruit earlier than in any other way; and not only earlier, but more abundantly, because the new sort has all the advantages which the old variety has acquired by long standing in its position, being thoroughly established, and, nothing to do but to grow and bear fruit, and do it well.

5. Two more scions can be inarched upon one root, as shown in figure 3, and a purchaser who already owns his well-established grape root can have one, two, or half a dozen of the newer varieties inarched upon it, each variety sharing the advantages of the old vine, and just as thrifty, strong, and vigorous as if each had been planted and growing for years beside the old farm house.

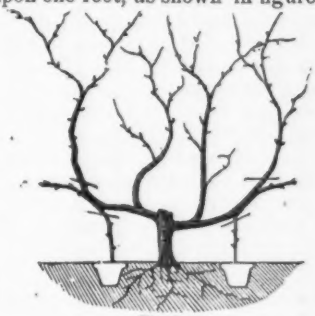


Fig. 3.

6. The old stock can all this while be kept in bearing with its own sort; because the gardener can, as shown in figure 3, select branches which are not to be interfered with, and from them enjoy the same crops as before.

Many times a gentleman has all the taste for enjoying the cultivation of a number of sorts of vines, while he can spare only the space requisite for planting two, four, or six roots. Let him remember, that by the process which we have above described, he can have ten, or twenty, or thirty varieties of grapes upon half a dozen roots, and when he tests them he can have his vines bearing exactly what he pleases, without the delay and the loss of constant digging up, planting, and transplanting.

DOVE FLOWER, OR FLOWER OF THE HOLY SPIRIT.

BY WM. CHORLTON.

(See Frontispiece.)

This singular flower, (of which our frontispiece is a faithful representation, drawn (one-third size) from nature by Mrs. Stirrup,) is the *Peristeria elata* of botanists. It belongs to the class Gynandria, and order Monandria, of Linnæus; and the order Orchidaceæ, sub-division Vandeæ, of the natural arrangement of botany.

Generic characters, *Peristeria.* Perianth globose, sepals somewhat connate with the base of labellum. Petals smaller than the sepals. Labellum erect, articulated in the middle. Column erect, semiterate, dilated at the

base. Anther crestless, two-celled. Pollen masses two, cleft behind. Gland sessile, naked, involving the beak.

Specific characters, *P. elata.* Scape erect, tall. Raceme loose, elongated. Epichilum roundish, serrulated, callous in middle. Hypochilum large. Lobes obtuse, one-toothed, on disk, longer than column.

The genus Peristeria is a very splendid group of pseudo-bulbous epiphytes, among the interesting, grotesque, and beautiful family of orchids. Our present species is the most remarkable of its relations, and is indigenous to the Isthmus of Panama, where it is found growing in low marshy grounds, and springing from the trunks of fallen and rotten trees.

A writer in Harper's Magazine has furnished a very incorrect drawing of this plant, but has, nevertheless, so poetically described it, that I take the liberty of transcribing his words. "Very beautiful, too, were some of the flowers, among which were some of that rare variety of the orchid family known as the *Espiritu Santo.* Its blossom, which is of an alabaster whiteness, approaches the tulip in form, and gives forth a powerful perfume not unlike that of the magnolia; but it is neither for its beauty of shape, its purity, nor its fragrance, that it is chiefly esteemed. Resting within the cup of the flower, so marvellously formed that no human hand, be it ever so cunning, could excel the resemblance, lies the prone image of a dove. The exquisitely moulded pinions hang lifeless by its sides; the head bends gently forward; the tiny bill, tipped with a delicate carmine, (*orange yellow,*) almost touches its snow-white breast; while the expression of the entire image (and it requires no stretch of the imagination to see the expression) seems the very incarnation of meekness and ethereal innocence. No one who has seen this can wonder that the early Spanish Catholics, ever on the alert for any phenomenon upon which to fasten the idea of a miraculous origin, should have bowed down before this matchless flower and named it '*Flor del Espiritu Santo,*' or 'The flower of the Holy Ghost;' nor that the still more superstitious Indian should have accepted the imposing title, and ever after gazed upon it with awe and devotional reverence, ascribing a peculiar sanctity even to the ground upon which it blossoms, and to the very air which it lades with delicious fragrance."

As the Dove Flower attracts so much of the attention of travellers over the Isthmus, and is often sent to, or brought by them for friends, who seldom succeed in cultivating it, and more particularly the blooming, a few remarks on this head may be of use to some of your readers. Being what we generally term a swamp plant, and a native of a warm climate, where the thermometer ranges between 75° and 95°, it requires to be kept in a temperature somewhat approaching its natural localities, and the roots in a loose, porous, but damp base. The method by which I have perfectly succeeded is as follows: Accept a soft-baked pot, in size according to the number and strength of the pseudo bulbs. Those large enough for flowering will be the size of a duck's egg, and for three such a gallon pot will be required. At the bottom, place some pieces of charcoal, stuff the crevices with moss, then more charcoal and moss until nearly full; fix in the bulbs now, around which put more moss, and outside this a few lumps more of charcoal to make them firm; then cover the surface with more moss, taking care that the bulbs are a trifle elevated in the centre of the pot, and only one-third of their entire length covered. Remove to a warm, close, and damp glass-house, where a temperature is maintained of 60° to 70° in the

night, and 85° to 90° during the day ; shade from the sun, and only give sufficient water to keep the moss moist until the leaves, which spring from the base, have made some growth, after which they may be syringed overhead of an evening, and a more plentiful supply administered to the roots. When the bulbs are fully matured, which may be known by their solidity, and cessation from increase in size, water should be gradually withheld, and finally discontinued altogether, until the flower stems begin to show at the base on one side of the bulbs, after which it may be again plentifully applied as before advised. It will be readily seen that with the above practice there is an active development, and after a maturing and centralizing period, corresponding with the wet and dry seasons of the region inhabited by our subject, which, with the other details mentioned, will enable any person, who has the convenience, to grow, bloom, and enjoy this magnificent flower in all its natural beauty.

In conclusion, I ought to say, the period of rest is through November, December, and January, when the flower stems begin to push, and continue elongating until July, after which the flowers commence expanding, and continue on so for six or seven weeks.

FORCING LETTUCE IN HOTBEDS.

BY PETER HENDERSON, JERSEY CITY.

Not to trespass on your valuable space, I will, as briefly as possible, describe the method of forcing lettuce, as practised by the market gardeners in the vicinity of Jersey City. The dates used, of course, are only applicable to this district and others of similar temperature.

The varieties used are the "Winter" or Brown Dutch, Black-seeded Butter, and Silesia. The seed is sown in cold frames from the 15th to the 25th of September. There is no necessity of pricking out or transplanting lettuce, if the seed is regularly sown on a level surface. On the approach of severe weather—generally about the beginning of December—the young plants are covered by sashes at night, but fully exposed during the day in mild weather, so that by the time they are wanted for planting in the hotbeds they are strong and hardy. We vary the time somewhat in commencing forcing, according to the state of the weather, but our usual time is the first week in January. The first operation is the preparation of the manure, which is fresh from horse-stables, as free from straw as possible ; (but in this we have not always a choice ;) it is carted into a sheltered spot, and thrown into piles in sufficient quantities to ferment. It is then turned over twice at intervals of four or five days, when it is in the proper condition to put into the forcing-pits.

It is in the structure and use of these pits that our mode of operations differs essentially from the usual practice in private establishments. The pits are from two and a half to three feet deep ; the sides are boarded up with spruce plank, which, if painted with coal tar, will last for fifteen or twenty years. The back board is allowed to rise nine or ten inches above the surface, the front board five or six inches ; this gives but a slight angle, but that we do not think any disadvantage. The width of the pit is six feet ; the most convenient length we find is about sixty feet, sufficient for

twenty sashes. The space allowed between the rows of pits for walking is four feet.

The manure when put in is made moderately firm to the depth of eighteen or twenty inches; it is then covered to the depth of six inches with soil. When the soil indicates a "falling" temperature of 80 degrees, the lettuce is planted at about six inches apart, or about fifty plants in a sash; with due attention to airing in fine weather, and covering up by straw mats at night, the salad is fit for market in six weeks from the time of planting, usually about the middle of February. This—the *first* crop—usually gives a return of about $2 50 per sash.

As soon as the crop is cut out, the soil is thrown off, and about six inches of hot manure is again thoroughly mixed through the now almost cold bed; this in a day or two again enlivens the whole mass, when the bed is planted over again for the *second* crop. This is usually sold off by April 1st, and is generally very fine, averaging $3 a sash. The weather by this time is warm, and no further advantage is taken of the hot manure; but the pits are again planted for the *third* crop, which comes in about May 1st; this last is rather late, and does not give more than $1 50 per sash. The three crops thus give collectively $7 per sash.

The advantage we claim for using sunken pits for forcing, over making the hotbed on, or partly on, the surface, is two-fold: First, the saving of the heating material, as only the width of the sash is required, while by the "three-light frame" system you require to make the bed nearly one foot wider on each side than the sash or frame. Again, by the action of the cold on the exposed hotbed the heat is much sooner exhausted than when in the pit, which is comparatively free from such influence.

It would be somewhat difficult to get at all the items of expense in the matter. The manure is used for the out-door crops, and the labor is performed by hands that are used for other purposes; but that the operation gives a fair profit, the best evidence is, that it is extended annually at an increase of nearly one-third, without diminution of prices. The growing of lettuce in *cold frames* is practised by us to a much greater extent, but as it may form the subject for some future communication, I need not further allude to it here.

[Mr. Henderson's experience as one of the most extensive and successful growers in the vicinity of New York gives special importance to his article. Our readers will no doubt be impatient to see his article on cold frames.—Ed.]

SMALL TREES *v.* LARGE ONES.

BY WILLIAM BACON, RICHMOND, MASS.

It is encouraging to see that the attention of fruit-growers has at last been diverted from the idea that a gain is to be realized from the purchase of "extra sized trees" at "extra high prices." Common sense and a very little experience ought to be enough to teach any one, that the purchase of such trees cannot be a very safe or very profitable investment, for the following reasons:

First, there is much more labor required and much greater risk attending the removal of such trees than of smaller ones. The roots of a healthy

tree extend in proportion to its age and the size of the top, so that a tree with a well-formed top may be supposed to have roots extending many feet beyond its circumference. To dig over all the soil they occupy in the careful manner it should be done, and take them all out uninjured, is a laborious service. Then the risk of removing such large roots without mutilation, is a hazardous one; and the risk of life in a tree after removal, increases in ratio with the size of the tree. And, again, the cost of such trees in nursery, varies in proportion to their size from as much again to four or five times as much as that of younger trees, that can be removed with less difficulty and a better prospect of success.

The imaginary gain in the operation lies in the fact, that it is an "extra sized tree." Perhaps it is a bearing tree. It may have shown its fruit for one, two, or three seasons. It may be filled with fruit buds when this extra price is paid for it, and may bear, if it lives, in the year of its removal. And then, very likely, it will stop for a season of rest; or rather to give the tree an opportunity to regain its wasted energies, and acquire new roots in the place of the mutilated ones left in the soil of its nativity; and while struggling to regain this loss, how liable to have disease creep in, and, in spite of a struggling effort between the cultivator and the tree, on one part, and the wrong it has had to submit to, on the other, to become a total loss. If this is not the case, circumstances are in favor of its having an injured constitution to battle with for a few years, and then it—poor, heart-smitten, and wronged thing—dies.

The root, we hold to be an important part of a tree; and if once injured it cannot be repaired. Without it no tree can be firmly established in the soil. Nor can it have a healthful growth or thrifty head, unless the roots are perfect.

Suppose two trees, one of "extra size," with the amount of roots ordinarily taken with such trees, and one on the second or third year from the bud, carefully taken up, were set in the same soil and subject to the same treatment; can any one doubt, that in ten years the small tree would far outstrip the larger one in growth, and would possess a healthfulness that the extra size would never know? Would not five years make the small one, at the beginning, the largest and best tree?

We once went with a friend to take up evergreens. He was anxious to take large ones, or those five or six feet high, and was accommodated. We took those from two to three feet high. Both parcels were planted at the same time, in soils equally favorable. Three-fourths of his died, the remainder dwarfed, while ours are now standing, beautifully tall trees, the admiration of all who look upon them.

Where the soil is favorable, we believe that trees almost universally succeed best when they remain where they spring up. Fruit-trees that are casually planted and grow by the sides of fences are much less liable to the invasion of insects than those stunted by frequent removals. Such trees usually have a good soil, made better yearly by the contributions of the winds that drive leaves and other decomposable matter, and lodge around them. Their thrifty growth and smooth bark seem to be somewhat a guarantee against insects and disease. Indeed, self-sowed trees in old fields where the soil is shallow, cold, and moist, will often flourish for a few years. In the end, they grow mossy, insects attack them, and they dwarf and die; not because they have too much root, but from the fact that they have not enough soil.

To us, then, the secret of successful tree-growing lies, in the first place, in having a well-prepared soil, deep, well pulverized, and sufficiently dry to throw off all stagnant water. It is much easier to create necessary moisture by stirring the soil, than to get rid of more than is necessary. Into such a soil we would introduce our young trees as early as possible, with all the roots and fibres that promised life and activity, in the full belief, that every year they have passed before their final locating adds so much to the chances against their living, and actually goes to shorten the natural period allowed them for old age.

DESIGN FOR A RANGE OF GRAPE-HOUSES.

BY JOHN B. EATON, BUFFALO.

Among the many designs for horticultural structures which have appeared in your journal, I do not remember, Mr. Editor, to have seen one for a combined range of houses, intended to produce a succession of grapes from early summer to late autumn, or even winter.

It is my impression that wherever, in this country, grapes are cultivated with a view to such a result, it is usually done in detached houses. To this method, although it may have some advantages, there are many objections; not the least of which is, the necessity generally existing of providing a separate heating apparatus for each house to be warmed, which involves not only the very obvious additional labor, but I am convinced a greater expense in fuel, not to speak of the difference between the cost of one heating apparatus (whether boiler or furnace) and several.

With this conviction I send you drawings of such a range as I conceive to be well adapted to the object in view, not as being anything new in principle, but with the desire of calling the attention of commercial grape-growers, of which there are now so many, to a point which I think has been somewhat overlooked. My plans present a range of glass, twenty feet in width by one hundred and eighty feet in length, affording room for planting about two hundred and fifty vines in the borders, besides which a large number might be grown in boxes or pots. The range should, I conceive, be capable of furnishing a succession of ripe fruit from early in June until late in December, and, while constructed in a plain and inexpensive manner, would present an appearance not altogether devoid of beauty, or discreditable to any situation in which it might be placed. Its elegance would be materially increased by a moderate amount of ornamentation, which could be done at a small additional outlay; but it being, as now described, intended solely for commercial purposes, I have avoided all exclusively decorative work.

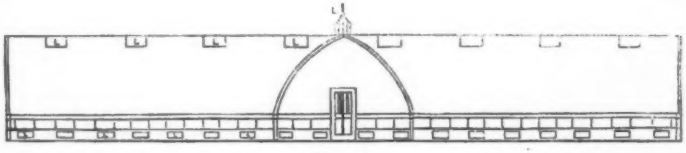


Fig. 1.

The drawings require little explanation. Fig. 1 is a front elevation, and Fig. 2 a ground-plan of the whole. Fig. 3 an elevation of either one of the ends, upon an enlarged scale. *A* is the forcing-house, heated by a double coil of pipe. *B* the succession-house, designed to follow the preceding in time of maturity, its fruit being in readiness when that in the forcing-house is out. This house being very slightly forwarded, requires but a single coil of pipe. Its fruit being just in advance of the general crop of cold-house grapes, I have given it a greater area than the other houses, with a view to its furnishing the largest part of the crop. *C* the cold-house, depending for

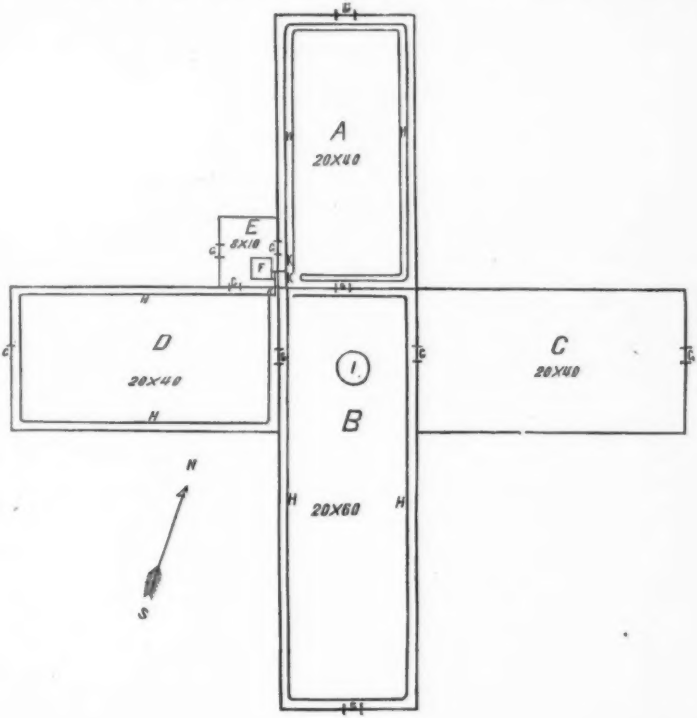


Fig. 2.

its warmth entirely upon the sun's rays. *D* the retarding-house, intended to commence ripening its fruit, as that in the cold-house is removed, and to preserve it upon the vines until well into the winter. It is heated by a single coil of pipe, which would doubtless be sufficient, except in a very cold or exposed locality. *E* the boiler-house, containing room for fuel, tools, &c., and affording entrance to the forcing and retarding-houses, at times when the severity of the weather may render it inexpedient to open

the outer doors. *F* the boiler, from which all the houses may be heated at once, or any one shut off at pleasure, by means of the stop-valves *K*. Rarely, if ever, would more than two houses require heat at the same time, and during a large part of the season, of course, no fire would be needed. *H* hot-water pipes. *G* doors. *I* cistern, receiving the water from the roofs, and furnished with a force-pump of sufficient power to thoroughly shower every part of the range. *L* ventilators, of which the lower ones are wooden shutters, hung from the top, and opening outwards, secured by a perforated rod of wood or iron; the upper ones, glazed like the roof, are hung alter-

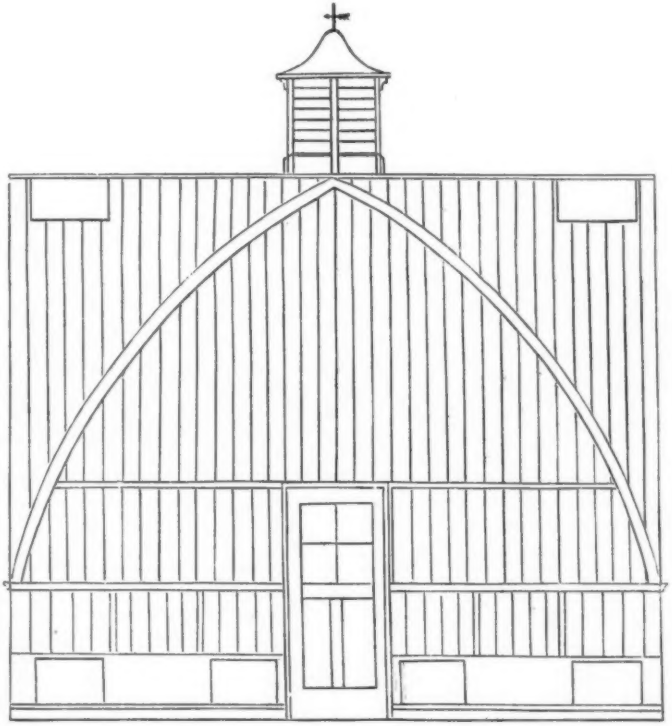


FIG. 3.

nately on each side of the ridge, and operated by means of a cord. The large ventilator at the intersection of the houses should be constructed with fixed blind-slats at the sides, so arranged as to prevent the entrance of water, with shutters in the bottom in the manner of a hot-air register, worked by a cord, or the upright sides may be swinging sashes, which I do not, however, like so well.

The houses are all of similar style and construction. *A*, *C*, and *D* are

each 20 by 40 feet, and *B* 20 by 60 feet in area. The side walls are 4 feet high, built upon posts, with 2 feet of wood-work, in which are the lower ventilators, and 2 feet of glass, either fixed or hanging sashes. The latter may be adopted, as affording more thorough ventilation, if desired, but I should prefer, if the lower ventilators were insufficient for the admission of the requisite quantity of air, to increase their number by placing one in each panel, instead of alternate ones, as in the elevations.

The roofs are curvilinear spars of 16 feet radius, and 16 feet in height to the apex. They are intended to be constructed in the manner which has been successfully practised here for some years, the rafters and bars being cut out with a *circular saw*. The rafters, which are placed about 10 feet apart, are sawed in segments, and two thicknesses firmly put together, by which great strength is secured, and the necessity of supporting columns entirely obviated. The roof bars are sawed in lengths of 4 to 6 feet, and are much stronger and less costly than is generally supposed. It may be thought by some greatly out of rule to place span-roofed houses at *C* and *D*, but I am satisfied that their many advantages more than counterbalance the partial deprivation of sun which the vines on the northerly sides would experience, and which would be somewhat greater than in a lean-to house of less width.

If it be desirable that the time of ripening should be nearly equalized through the whole house, it is not difficult to select earlier sorts for the northerly sides, which will naturally be retarded, until their maturity nearly corresponds with those in front; but I do not consider it a disadvantage to have the season of each sort prolonged by the different exposures, and think it quite feasible, by a judicious selection of varieties, to cause the north and south sides of those two houses to furnish as regular a succession of each sort as if they were grown in distinct apartments.

I should prefer to place the extremities of the range nearly, but not quite, opposite to the cardinal points, so that the front of *B* should face, say, south-south-east, or south-east by south. The most exposed ends I should glaze also upon the inside, the bars being rebated for the purpose on both sides. This double-glazing, as I know by experience, is of great advantage in windy weather, which is a much greater evil to contend with than a more intense degree of cold. With a still atmosphere, it saves a very considerable amount of fuel, and places the temperature much more under control. If the northern end of the forcing-house be very much exposed, I should be inclined to construct it entirely of wood, tightly battened.

In regard to glass, there are many different opinions, and novices are frequently at a loss how to decide between them. The heavy sheet or plate glass, whether plain, rolled, or enamelled, undoubtedly possesses superior advantages, but its much greater cost is a serious obstacle to its employment in such a structure as I am describing, in which economy is a material point. I have seen so many houses glazed, in a very satisfactory manner, with "double-thick" 7x9 and 8x10 glass, that I should not hesitate to use it in this instance. It is necessary to exercise great care in selecting the glass, as none but perfectly clear lights should be placed where they will receive the sun's rays, an apparently slight imperfection frequently causing much trouble by burning the foliage. The slightly imperfect ones will do no injury on the north side of the roofs, and those still more defective may be used for the upright portions, the south front, of course, excepted.

The superiority of hot water over every other method of heating is so generally conceded, that I should employ it, as a matter of course. There exists, however, a great diversity of opinion in regard to the merits of the numerous boilers extant, each manufacturer naturally claiming superior merit for his own pattern over every other. This subject I am not now prepared to open; I should even hesitate a little before deciding upon one for myself, were such a decision requisite; your readers will not, therefore, expect me to give an opinion for them. I do not believe that the perfection of a hot-water apparatus is yet reached, notwithstanding the real improvements which have been made within the past few years, but there are even now several very excellent boilers in use; and some one who would make a thorough examination of their various merits, and give us the result, with the statistics, for comparison, would render a real service to the horticultural public.

CULTURE OF ERANTHEMUM PULCHELLUM.

BY DANIEL BARKER, HARTFORD, CONN.

Among the many old and beautiful flowering plants, which from some cause are almost neglected, except by here and there a devoted lover of old as well as new plants, the *Eranthemum pulchellum* holds a very high position.

It is generally treated as a stove plant, and but seldom seen in perfection. We have great pleasure in using our efforts to bring into notice this most beautiful plant, because it is, when properly treated, a most lovely and interesting object; and more especially as it is one of a great number of good old plants which have been displaced by such as possess novelty, but in many instances little ornament.

During the month of March, or April, select some half-ripened wood as cuttings, placing them round the edge of a pot, in good sandy soil. Place the pots in a gentle hotbed. Soon as rooted, place them in pots according to the amount of roots, being careful not to over-pot them; return them again to the hotbed. When they commence growing, pinch out their tops, when they will soon commence throwing out lateral shoots. They must be shifted again, as soon as the roots show themselves through the bottom of the pots, into pots two sizes larger than the ones in which they have been growing; and when the lateral shoots have made some three or four joints, these joints must also be taken off, when they will again throw out more laterals: by this means a handsome, bushy plant will be obtained, of from one foot to eighteen inches in height. This, under ordinary circumstances, will be about the beginning of June, when the plants must be removed to a cool frame, and plunged in old leaves or spent tanners' bark, protecting them from heavy storms of rain, and being careful not to supply them with too much water.

In this situation the shoots will become well matured, and the plant will become dormant early in the fall. They may be kept in the frame as long as there is no danger to be apprehended by frost. They should be removed a few at a time into the forcing-house, having been previously repotted into pots which will contain about half an inch of fresh soil around their roots. Supply liberally with water with frequent syringings overhead.

The result of this treatment will be beautifully-shaped plants, with four shoots, each of which will produce three lovely clusters of blue flowers.

The soil in which the Eranthemum flourishes is equal parts of good fibrous loam, sandy peat, and good rotten leaf mould.

There are but few plants the cultivation of which is more simple, and but few that are more beautiful; and where forced flowers are in request during the winter months, but few more desirable.

[A well-timed effort on behalf of an old, but really beautiful plant. We hope Mr. Barker will continue his labors in this direction. Many of our "old worthies" are too much neglected.—Ed.]

THE VENTILATION OF HORTICULTURAL HOUSES.

BY WM. CHORLTON.

In approaching this important horticultural subject, it may be well to examine the outward bearings of the case; and, in so doing, we must refer to the causes which govern the currents of air in the external atmosphere. When the air by which we are surrounded becomes heated, it expands, and is specifically lighter, in consequence of which it mounts upwards; and the colder and denser air which surrounds the mass thus rarified, rushes in to supply its place. When the door of a heated apartment is thrown open a current of air is thereby immediately produced, the warm air from the apartment passing out at the top of the opening, and the cold air from the passage rushing in at the bottom, while in the middle it is stationary, or nearly enough so for all practical explanations. When the rays from the sun, by their reflection from the earth's surface, have heated or rarified a portion of the surrounding air, the air so rarified ascends into the higher regions of the atmosphere, and the colder air by which it was surrounded moves forward in a sensible current to fill the vacuity. From the above observations, then, it is readily understood, that the tendency of heated air is to fly upwards; and, also, if there is free egress from the higher part of any ordinary glass structure, the inside temperature will be prevented from attaining to any considerably higher range than the external air; while a rapid circulation will be secured by the drawing in of colder and denser air from the outside, through the laps of the glass, crevices, and jointings of even the best constructed house, without the necessity of opening any bottom ventilators.

"By far the larger number of gardeners attach great importance to preserving the power of ventilating their houses abundantly, without, perhaps, sufficiently considering the nature of the plants they have to manage; and, as has been justly enough said, by supposing that plants require to be treated like man himself, they consult their own feelings rather than the principles of vegetable growth. There can be no doubt, however, that the effect of excessive ventilation is more frequently injurious than advantageous; and that many houses, particularly hothouses, would be more skilfully managed, if the power of ventilation possessed by the gardener were much diminished.

"Animals require a continual renovation of the air that surrounds them, because they speedily render it impure by the carbonic acid given off, and

the oxygen abstracted by animal respiration. But the reverse is what happens to plants ; they exhale oxygen during the day, and inhale the carbonic acid of the atmosphere, thus depriving the latter of that which would render it unfit for the sustenance of the higher orders of the vegetable kingdom ; and, considering the manner in which glass-houses of all kinds are constructed, the buoyancy of the air in all heated houses would enable it to escape in sufficient quantity to renew itself as quickly as can be necessary for the maintenance of the healthy action of the organs of vegetable respiration. It, therefore, is improbable that the ventilation of houses in which plants grow is necessary to them, so far as respiration is concerned." —*Lindley's Theory of Horticulture, p.* 150.

It is now a well-known fact, that many plants will thrive better when confined in close glass cases than they would do with an abundance of fresh air, providing light is duly admitted ; and it is as fully demonstrated that light is more indispensable in general culture than a constant change of the atmosphere. Under the influence of this agent chemical action progresses, carbonic acid is decomposed, the oxygen is driven off, and the carbon retained, and, consequently, according to the deposit and amount of the latter, so will be the more or less solidity of vascular tissue in the plant, saccharine matter in the fruit, and corresponding concentration of growth. I have, in many instances, proved the truth of this reasoning in practice ; and we have also the testimony of the well-known authority Mr. Knight, in support of the same. He says, (Hort. Trans., ii., 225,) "It may be objected that plants do not thrive, and that the skins of grapes are thick, and other fruits are without flavor, in crowded forcing-houses ; but in these it is probably light, rather than a more rapid change of air, that is wanted. For, in a forcing-house which I have long devoted, almost exclusively, to experiments, I employ very little fire heat, and never give air till my grapes are nearly ripe, in the hottest and brightest weather, further than is just necessary to prevent the leaves being destroyed by excess of heat. Yet this mode of treatment does not at all lessen the flavor of the fruit, nor render the skins of the grapes thick ; on the contrary, their skins are always most remarkably thin, and very similar to those grapes which have ripened in the open air." Now, the entire exclusion of "fresh air" is not advocated here, neither would it be judicious during all periods of vegetable growth, and with all kinds of plants ; but such argument goes to prove, that in some cases it is absolute, and, under other circumstances, a continual flow is not required. The general expression, then, "Admit plenty of fresh air," demands some more tangible proof than the mere assertion, before the advice is acted upon ; and more particularly so, when we take into consideration the fickle and changeable climate we are working in, and where, we may say, we are often fighting the most adverse elements.

Nearly all the plants that are cultivated in glass structures are natives of more favored climes than ours; besides which, as in the case of forcing fruits, we have them in full activity at a time when, in a state of nature, they would be at rest; and out of doors, our most perverse wintry weather is in existence, which makes it self-evident that great caution is needed with regard to the admission of external influences. A few examples directly from nature, respecting the geographical peculiarities, though, perhaps, a slight digression, may serve to illustrate what is here meant. As all the plants which come from these different regions must be somewhat accommodated

accordingly, we have no other resource left than to suit their organism. All that has been said and written about acclimating, and all that may be in future attempted, will never change this ; and, further, all that we can gain is only a knowledge of how far the fixed organic structure of any plant is adaptable to our necessary artificial conveniences.

In the West Indies the mean average in the shade of different stations, extending from lat. 13° to 18°, is about 80° 55', and the difference between the hottest and coldest months is not more than 5° or 6°. In the Indian Archipelago, almost under the equator, it is nearly the same, and the thermometer is never known to fall below 60° ; and so, comparatively, of other tropical countries. In addition to this uniform temperature, many of the plants from such regions are found growing in the woods and thickets, and are consequently less exposed to the fluctuations of weather, which renders them more susceptible to injury from sudden drafts of cold, or dry air. From the above we may infer that an even, genial, and somewhat moist atmosphere, ranging from 85° by day, with sunlight, and 60° to 70° at night, is suitable for stove-plants. Such in practice has always been the best and most successful with the writer, and all good plant-growers will testify to the same. A house where stove-plants are grown ought never to have a front ventilator opened, nor yet a door, excepting while it is necessary to pass through.

As we pass away, north or south, from the torrid zone, there is a corresponding difference of climate; it is more temperate, but the extremes of radiation and other circumstances become greater. In the tropics, however, the same conditions exist in the more elevated situations, the sides of exposed hills, and other like differences ; and these conditions, in progressive ratio, are also to be found in the temperate regions of which we now speak. Excepting the higher portions of the loftiest mountains, nearly all the plants which are indigenous to these adjoining latitudes, are, in cultivation, technically known as *greenhouse*. Here a freer circulation of air may be allowed with advantage. It requires, however, some experience, even in this case, to determine what amount of ventilation is most suitable for the various genera, and at what particular periods of growth and weather it ought to be freely given. This class of plants are not confined to narrow limits, they are spread over a vast geographical range ; but in no case are they able to bear many degrees of frost ; and while some are very impatient of extreme heat and dry air, and equally so as regards cold, there are others which, during the growing season, will bear with advantage the greatest heat and rarefication of the air that occurs in any country, and, when at rest, may be exposed to a lower temperature than the former mentioned, provided the growth is fully matured. Both may be considered as greenhouse plants, and are commonly accepted as such; but the bare mention of these different constitutional habits goes to show that ventilation ought to vary much in the respective treatment. These very opposite subjects are often congregated together in the same house, as a matter of necessity, and with tolerable success if the warmer and colder parts of the apartment be occupied according to the requirements of the inmates. For example, the upper part of any glass-house is generally warmer, while the lower is colder; and these two extremes are mentioned here to show that the evil consequences of bottom ventilation may be prevented at all times when the weather is unpropitious. The best growers of fruits, artificially, are well

aware of these facts, and are very cautious with regard to ventilation, knowing full well that upon this point the greater part of success depends.

To return more directly to our subject, let us take into consideration the general form of glass-houses, how the circulation of air is affected by ventilation and artificial heat, and what effect these have upon the vital action of plants. Whatever style of architecture we may adopt for these houses, it is only comparatively a modification of the common lean-to as respects the circulation of air within. There is always a roof overhead, which becomes one or more angles above the lower cube; the heat, from whatever source it may be obtained, is always moving up into these higher parts, and, as glass is a good conductor, much of it is given off into the outside atmosphere. When we take into account, also, the immense number of small apertures by which the external air can enter from below, it is readily seen, that there is no such thing as a complete quiescence, and more particularly when the heating apparatus is working there must be a tolerably brisk movement going on, although the means for ventilation are closed. These conveniences for ventilation are generally arranged along the upper part of the roof, and in the upright front; and, supposing they are all opened, the consequence is a quick escape of the heated air and moisture from above, and a violent rushing in of that which is denser, colder, and drier from the outside below, in extreme, or otherwise, according to the condition of the external atmosphere, increased in intensity by the partial vacuum which is being produced. So much is this the case, that the lower stratum of air in a glass-house may be rendered several degrees lower than the outside temperature in the middle of a hot summer day, and a most chilling draft when the weather is colder. If the air has been for some time, and still is, under the influence of artificial heat, these effects are augmented, not so much in degree as the less qualified state of the plants to bear such extremes. Plants are, in this respect, like animals, possessed with life, having perspiring, respiring, and circulating organs of great delicacy, and equally, or more, susceptible to injury, each and all being submissive to its own constitutional entailment; and it behooves us to study how we may best adapt our care of them; for, depend upon it, if we do not humor their peculiarities, they will give us neither pleasure nor profit. Let us stop for a moment to discuss the relative conditions. As stated above, our climate is extremely changeable; one day hot and dry, the next cool and moist; in summer we have often a torrid heat, and in winter a polar cold, with a frequent change of 30° to 40° in a few hours at any time of year. The plants we cultivate in glass-houses, either as fruits or for ornament, are either from the torrid zone, (where the extremes of temperature may be only 10° or 12° throughout the year,) or more uniformly mild regions than our own. The object of our artificial structures is, to furnish these subjects with a similar climate to that from which they were imported, and this, too, very often, during the continuance of our arctic winters. Is it not reasonable, then, to conclude, that the admission of such climatic fluctuations as are common to our continent must be nullifying our intentions, and paralyzing in the effects produced upon the plants?

In making the above remarks, I do not wish it to be understood that fresh air or copious ventilation is invariably an evil; far from it. Without a pure atmosphere no plant will flourish for any length of time; neither will fruit

be of good quality, or flowers highly colored, or odorous; but I would caution all fruit and flower-growers against accepting the too common method of admitting bottom drafts, without a due consideration of the state of the external atmosphere, and also the stage of growth of the inmates. All that is needed in this respect is a suitable temperature and atmosphere, with abundance of light and a freedom from any noxious gases.

A few observations of a more mechanical character may be of service. We have seen, so far, that heat may be diffused through the whole cube of a house, but the tendency is to pass upwards, and out of the upper part of the roof; consequently there is a circulation of air in the interior, in proportion according to the influences at work. This, however, is not always in a direct perpendicular line, and even a cool bottom current may be produced without the aid of any ventilation. If we choose the common flue as an illustration, and consider it as placed on the ground level along the extreme front, the end nearest to the fire will be the hottest, and of course the radiated heat greater. In this case the opposite end close to the ground, at the back, will be the coldest and heaviest, and the air will move along the floor in a diverging diagonal stream, to take the place of that which is more rarified, the which will also travel in a contrary direction near the top. It will thus be seen that one part of a house so heated will be comparatively cold, while the other is warm. If hot-water pipes are laid in the same position, with one flow and one return, the warmth at both ends of the house is equalized, the current being direct with the plane of the roof, and the coldest part will be, in less extreme, along the ground level at the back. In both examples there is a disparity of temperature; but if in the former the flue were continued in return a short distance from the back, the heat would be more generally diffused through the whole atmosphere, and in the latter nearly equal in all parts, while a constant circulation is kept up by the draw from the outside.

There have been many mechanical contrivances introduced for ventilating glass-houses, intended to supersede the common lift-up, let-down, or sliding sash, all of which are more expensive than useful. The main principle involved in such inventions is, the opportunity for admitting air from a chamber above the roof, and also warming it before entering the house in front. The known necessity for such appliances goes to prove the evil of cold drafts, but there is no reason why they should be let into a house, if the ordinary ventilators are attended to in a sensible manner; consequently such machinery can be dispensed with. True, if no attention is given to the way in which the admission of air is performed, much injury may be, and often is done, and many of the complaints of shrivelled leaves, stagnation of growth, mildew, and other bad effects, have their origin in this cause. The object of ventilation ought always to be the maintaining a suitable temperature and atmosphere within, while sudden differences are avoided. If a house should happen to become too hot, it is not advisable to immediately throw open all the ventilators, even though otherwise such might be suitable, but to do so by degrees; because by such course the heat would pass off so rapidly as to produce a temporary vacuity, and an intense reduction of temperature, the which would condense the moisture previously in solution with the atmosphere, rendering it cold and dry immediately surrounding all surfaces of the plants that shortly before were being stimulated by opposite influences. Under such circumstances the juices undergoing assimilation in the leaves are

drawn out, a violently paralyzing effect is produced through the whole structure, a possibility of permanently reducing the vital energy, and the accompanying proneness to disease and premature death.

It is requisite also to keep, as near as possible, an equal temperature over all parts of a house when the ventilators are open, the which needs some caution. The wind may blow in a diagonal line over the roof, or it may pass longitudinally. In either case, if the openings are equal in extent on the whole length, a strong current will enter the inside at the opposite end, and a rolling, as it were, of a cold volume down to and along the lower base; and the warm air will be rapidly expelled at the windward point of the upper openings. Such being the case, it is best to reduce the openings, or keep closed, according to circumstances, at the leeward end, and thereby prevent the evil. Again, the wind may strike directly across the roof, which will require all the openings to be alike, but care is necessary here that it is not allowed to enter so as to produce a cold and chilling effect.

There are many other details of similar character to what is recorded, which only require a trifling observation in the operator, consequently they need not be mentioned; and I hope these few remarks may be of service to the amateur, for whose benefit they are penned.

[Mr. Chorlton has here touched upon a most important subject, and one but little understood. His article is too long for comment, but we can not let the occasion go by without endorsing the general principle here set forth. The extract from Knight is specially to the point, and contains good sound doctrine, which addresses itself with peculiar force to the good sense of the intelligent grower.—Ed.]

THE DIOSCOREA BATATAS.

BY F. HOLLICK, M. D., STATEN ISLAND.

The result of my fourth year's experience with the Dioscorea batatas is, that I am satisfied it may be made a profitable and desirable article of cultivation, at least for the *garden*.

On deeply dug grounds, with a medium supply of well-rotted stable manure, I have produced roots weighing six pounds, from one plant, and I think they may be made to *average* five pounds. Some of mine were planted one foot apart each way, and others only six inches apart one way by a foot the other. On the same soil I observed no difference in the product, but, on the contrary, I think those at *six inches* were the best.

I decidedly think that the plant was much weakened when we first had it, *constitutionally*, by having been so much *subdivided* to increase the quantity for *sale*. The largest roots I could raise at first were very small compared with those I can raise now, and it certainly has improved each year, as the part planted has been larger and better developed.

The number of axillary *tubers* has also increased, and they, too, have been *larger*. In fact, the number produced of these tubers is enormous. They cover the ground, and thousands have to be dug in, or left on the surface. They will, however, remain in the ground all winter and come up themselves quite thick in the spring.

These tubers will form good roots when planted the following year, but

not such large ones as those from other roots. The true plan seems to me to be this with them: To plant them quite thick, almost like seed, the following year after they are produced, and let them make *small roots*, which plant again the next year, say six inches by twelve, and they will then form fine roots of four to six pounds each.

When roots are planted it is best to lay them along the ground, horizontally, and just cover them over—at least mine did best that way. Next to whole roots, it is best to plant the thin ends of the largest roots, which are not good to cook.

I should perhaps remark here, that the product of every plant is not *one root*, but often two or three.

The larger the root is that is planted, the larger the product will be as a general rule. The planted root does not grow, nor does it rot away, but only shrinks up, and hardens. The earliest start and the best growth are made from the top of the root, on the tip end of the thin part.

It is now demonstrated that this root is perfectly hardy, even in very severe climates, and it will also *take care of itself*. Any part left in the ground will produce other roots the next year, and the little tubers formed above ground will do the same. In fact, numbers of these will *strike* and make roots as large as the little finger, by fall.

This root may, therefore, be planted on the western prairies, and all along the various *overland routes* to California. In all those plains and valleys, and even on the mountain slopes, I feel confident it would soon multiply, if once planted; so that emigrants and others, who have to traverse those now *foodless* regions, could always depend upon it as a means of subsistence.

The importance of this, it seems to me, can scarcely be overrated, and I trust this brief allusion will call attention to it. The Federal government should see to this, and have the Dioscorea planted at the various military stations, and along the routes which the troops traverse. A single quart of the little tubers would *start* the plant over hundreds of miles, and then, as I before observed, it would take care of itself. Even on *sandy plains*, I have no doubt but it would attain at least an *eatable* size.

It would give me great pleasure to contribute my share of the tubers for this purpose, from my own stock, if any one will do the work.

Doubtless there are other wild regions in our country where a similar experiment could be tried, and if any gentleman feels desirous of trying it, I will send him the tubers with pleasure.

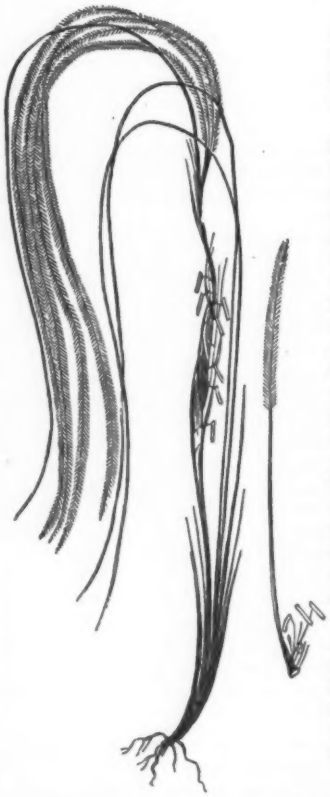
Those who wish to trace these experiments from the beginning, will find my previous articles in the back volumes of the HORTICULTURIST, and those in the city who would like to see the *roots*—as *seeing* is *believing*—will find specimens at Mr. Elliot's seed store, in John St.

[Dr. Hollick deserves much credit for the persistent manner in which he has carried out his experiments with the greatly abused Dioscorea. It is only by such experiments that its value, whatever it may be, can become fully known. We have never believed that it was destined to supersede the common Potato, but supposed, notwithstanding, that it might have some useful properties. There is one thing at least about it which makes us wish that it might be introduced into every garden, and the owner compelled to dig it out clean: the ground would thus get a "stirring up" greatly beneficial to it, and which, in nine cases out of ten, it would not get in any other

way. Dr. Hollick's suggestion, that the Dioscorea should be planted along our military routes, might very well be taken into consideration by our government; though we can hardly hope for action on such a subject in that quarter.—Ed.]

ORNAMENTAL GRASS.

STIPA PENNATA—(FEATHER GRASS).



This Grass, so often found in the windows of our seedsmen's shops, is one of the most graceful of its tribe. It is among the grasses what the Bird of Paradise is among birds.

It is a perennial, with fibrous *roots; leaves* in thick tufts, upright, long, narrow, sharp, rather rough, and dark green; *sheaths* of leaves striated, very long, especially the uppermost one, which is also considerably swollen, inclosing the young head of flowers, rising above it when blooming, the leaf being bent back, pendulous, striated, and with edges turned inwards; *stipules* oblong, blunt; *panicle* or head of flowers on a stem about a foot high, erect, composed of six or seven flowers; *calyx* of two nearly equal, spear-head shaped, concave, pointed valves, containing one floret; *corolla* of two valves nearly equal in length, the outer valve spear-head shaped, edges turned in, slightly keeled, with a terminal, twisting, feathery *awn*, sometimes a foot long, jointed, and finally separable at the base; inner valve much narrower, awnless, turned in at the edges, smooth. *Seed* cylindrical, pointed, loose, closely inclosed in the hardened outer valve of the corolla, which is very sharp, and barbed with bristles at the base, so that, after being borne through the air sustained by the long awn, when it alights upon the soil it there soon penetrates, and is retained by the barbs.

The beautiful and feathery appearance of the awns arises from their being thickly set with very fine, soft, whitish, semi-transparent, diverging hairs.

It is found on dry, mountain, rocky soils, and in such a situation was discovered about the year 1724, by Dr. Richardson, in company with Thomas Lawson, both good botanists, on the limestone rocks hanging over a little valley, called Long Sleadale, about six miles north of Kendal, in Westmore-

land. (Ray's *Synopsis*, 3d ed., p. 393.) No one has detected it there since, nor in any other part of the British Islands, and we fear that it no longer belongs to our native Flora. It blooms in August, and ripens its seed about the middle of September. It belongs to the *Triandria Digynia* class and order of the Linnæan system.

Mr. Sinclair says that he never could obtain plants from the seed of this grass when sown in the ordinary way on soils in open situations, and it may be owing to some peculiarity of this kind that it is now not to be found wild in this country. In pots and favorable positions the seeds vegetate very well. In many parts of Germany it grows naturally on Alpine or dry, sandy places much exposed to the sun.

Gerarde, more than two centuries since, says, "This elegant plant Clusius first observed to grow naturally in the mountain nigh to the baths of Baden in Germany. It is nourished for its beauty in sundry of our English gardens, and is worn by ladies and gentlewomen instead of a feather, the which it exquisitely resembles."

It is readily propagated by divison in the spring, and flourishes in an open situation and light soil, especially if the soil contains chalk, or has lime-rubbish mixed with it.— *Gardener's Chronicle.*

FRUITS OF DELAWARE.

BY DR. GEO. PEPPER NORRIS, NEW WILMINGTON, DEL.

Apples.—In the present pear excitement and grape mania we are neglecting our standard fruit. Notwithstanding all that has been said about the preservation of pears and grapes during winter months, experience proves that we are without any fruit except apples from December to June. Facts are stubborn things. No one will rejoice more than the writer when winter pears and native grapes are plenty in February, but until there is more prospect of it than at present, let us not neglect the universally respected apple.

Baldwin.—Although a native of Massachusetts, this is one of our most popular varieties ; a good bearer, and a fine-flavored apple. Ripe from November to March.

Caleb.—One of the best early sweet apples. A vigorous grower, and productive ; good for eating or cooking. Does well in this vicinity. August and September.

Early Harvest.—Another good early sweet apple ; a valuable fruit either for dessert or cooking. Does well in this vicinity. July and August.

Fallawater.—Under the *sobriquet* of "Fall de Walldes" this apple is known among our farmers. For general cultivation it deserves all that can be said in its favor ;—though not a first-class fruit for the table, yet its good size, appearance, fair flavor, and its great certainty of yield, entitle it to a position in the front rank. It is not so much the apple for the amateur as for the farmer, who wants an apple for general use—eating, cooking, paring, etc., etc. November to February.

Golden Russet.—A favorite variety, of golden russety hue. January to April.

Pennock.—Probably oftener met with in the Wilmington market than any

other variety; although its liability to bitter rot is compelling it to give way to better varieties. A native of Pennsylvania; large, deep, red apple, with a pleasant sweetish flavor; good for eating or cooking. November to March.

Smith's Cider.—A Pennsylvania apple; one of the most vigorous and productive varieties; greenish white, juicy, acid flavor. A profitable fruit. December to March.

Smokehouse.—One of the oldest and best known. Tree vigorous, and a great bearer; medium-sized fruit, yellowish, crisp, and acid; excellent for pies and cooking purposes generally. October to March.

Other favorite varieties are, Jefferies, (native of Chester county,) Lady Apple, Maiden's Blush, (New Jersey,) Rambo, (an excellent variety, and very popular in this neighborhood,) Summer Pearmain, (much esteemed in New Jersey,) Porter Roman Stem, (resembles Yellow Belle Fleur,) Strode's Birmingham, Tolman's Sweeting, and Vandevere, a native of this place; a fine apple for cooking, but subject to bitter rot, and, like Pennock, has been superseded by Smokehouse and other better varieties. Christiana originated in this neighborhood, and is ranked "very good." King of Tompkins County deserves a trial in this vicinity.

Trees should be selected of reliable nurserymen, by the purchaser in person, if possible, either in the autumn or early spring; fall planting is preferred here; forty feet apart is the usual distance. With good soil, proper situation, well-selected varieties of vigorous trees, and fair culture, the apple can hardly fail to become a remunerative crop.

TREE-MOVER.

The accompanying cut illustrates a very convenient contrivance for moving large trees, for the drawing of which we are indebted to a young friend. It is not a recent invention, but will probably be new to many of our readers. It almost explains itself. The truck is backed against the tree, the tongue thrown up against the body, and secured by stout cords. The earth is then removed from around the roots, the tongue pulled down by means of the rope attached to the end of the tongue, a team hitched fast, and the tree moved to its new quarters. The truck is placed over the hole in which the tree is to be planted, the tongue thrown up, and the tree is then in just the right position for filling in the earth. A truck of this kind would be very useful in planting parks and large grounds, and a small one would be useful for general purposes.

EDITOR'S TABLE.

To Contributors and others.

Communications, Letters, Catalogues, Periodicals, &c., intended for the perusal of the Editor, and packages by Express, should be directed to the care of C. M. Saxton, 25 Park Row, New York. Exchanges should be addressed to "THE HORTICULTURIST."

OUR present number will reach our readers in the midst of their spring preparations, a busy but joyous time for the gardener. We should be glad to know that we had done something to assist him in his labors. Some, no doubt, will have a portion of their labor to do over, for the ground is frozen hard again, and as we write our last lines it is snowing fast.—We have received complaints from some of our subscribers that they do not receive the magazine promptly. It is mailed here regularly, and the fault lies at the door of the post-office. We are now investigating the cause of miscarriage, and would like to hear from all our subscribers who do not receive the magazine in good season.—Again we have to lament the necessity for crowding out some very interesting matter, and our inability to answer a number of questions for want of room; the matter itself, however, will be none the worse for waiting, and it is just as well that our readers should know that we have some good things still in store for them.

SHADING GREENHOUSES.—Where plants, such as the Fuchsia, Gloxinia, Achimenes, &c., are kept under glass during summer, it becomes necessary to break the force of the sun's full rays, and this is frequently done in a slovenly manner. What is wanted in such cases is an elegant application, one easily applied and easily removed, and which will break off the sun's rays without making a heavy shade. We have been in the habit of using a mixture of whiting and linseed oil, which answers the purpose well. The following, translated from the *Revue Horticole*, would seem to be a good preparation, and we should be glad to have some of our readers try it, and report the result:

"Wheat flour slightly cooked in a small quantity of milk is to be reduced to a thin clear paste or jelly, and spread on the glass with a soft brush. This paste dries immediately, and forms a light layer, or fine membrane so to speak, which allows the transmission of a light, soft, continued, as strong as that through unpolished glass, to which it may be compared, and much less sombre and unequal than that through Spanish white during the absence of the sun. It resists rains and tempests as well as Spanish white, and is removed as easily by means of a rough brush and warm water."

THE SCUPPERNONG GRAPE.—Mr. McLean, writing from North Carolina, says: "I see a description of the Scuppernong, by Mr. Van Buren, of Georgia. It is a good description of a seedling, but not of the grape generally. He mistakes the origin of that fine grape. I may say something about it on gaining more information than I now have. We consider the Scuppernong and Bullus as original grapes; the first produces from seed both light and black grapes. The Bullus has never been known to produce the Scuppernong, not even the inferior seedling, which is easily told from the genuine grape by any one that has noticed them closely."

DIANTHUS CHINENSIS HEDDEWIGII.

A NEW WORK ON THE GRAPE.—Messrs. Saxton, Barker & Co., have in press an elaborate work on the culture of the Grape, by Dr. Grant, of Iona. It will probably be the best book yet published on that subject.

MR. HUSMAN'S WINE.—In speaking of this wine last month, we stated that it had become a little sour. Justice requires us to say that we have discovered a reason for it in the fact that the bottle had remained opened for a day or two near a hot fire, which would injure the best made article. We are still of opinion, however, that it is an excellent wine.

THE Charlton Strawberry and Chorlton's Prolific, we are assured, are not one and the same thing. The former we do not know; the latter we do, and it is a good one.

THE NEW CHINESE PINKS.—Among the annuals recently introduced, the new Chinese Pinks promise to be among the most popular. We present our readers with a drawing of one of the new varieties, named *Dianthus Chinensis Heddewigii*, which, with a fuller description, was crowded out of the body of the magazine, and now very gracefully makes its appearance on our Table. We learn from our foreign files that we are indebted for this beautiful flower to M. Heddewig, of St. Petersburgh, who obtained it from Japan, and sent some of the seed to London, where it flowered in 1859. It closely resembles the old Chinese Pink, but is much superior in size and richness of coloring, embracing every conceivable hue of crimson, maroon, violet, rose, and white. "The markings of the individual flowers are strikingly beautiful; some have a centre of rich velvety crimson, shading off towards the edge of the petals with lighter crimson and rose; others, with a maroon centre, have the rest of the petals curiously marbled and blotched, while others are striped with various shades of rose, lake, pink, and white. This diversity of color, where several plants are grown together, forms a mass quite indescribable." This description is fully borne out by the beautiful colored drawing from which our engraving is taken. The flowers are three inches in diameter. The plant blooms freely, and grows about a foot high.

Closely allied to this is the *D. C. laciniatus*, which, however, grows two feet high, with flowers about four inches in diameter, each petal consisting of a long, delicate fringe, some double, others single. The colors are pure white, flesh, rose, various shades of red, carmine, violet, purple, and rich maroon, some being all of one color, and others striped and spotted.

Such are the new Chinese Pinks, as we find them described and colored. They are constant bloomers, and hardy, and we hope to see them in every garden.

GISHURST'S COMPOUND FOR DESTROYING INSECTS.—We have received a sample of this preparation from Mr. Bridgeman, 878 Broadway, N. Y., for trial. It is certainly effectual on the Green Fly and Red Spider, and we are led to believe, from what we know, and from the recommendations accompanying it, that it will destroy most of the insects which prey upon plants; probably all. We shall give it a thorough trial on all. We hope such of our readers as may try it will give us the result.

WE made a brief visit to Jersey City a few days since, and stopped at Mr. John Henderson's, where we saw immense quantities of Fuchsias and Verbenas in the finest possible condition, these being his specialties. We then went round to Mr. Peter Henderson's, who grows Roses on a great scale. We saw probably not far from ten thousand Roses in pots, all in the best possible condition, and coming on finely for market. We have been promised some statistics on the "Rose trade" which will be interesting. We shall make more such visits soon.

THE COMPREHENSIVE FARM RECORD. Prepared by Dr. F. B. Hough, of Albany, Superintendent of the New York State Census.—This is a well printed and ruled blank volume of 150 quarto pages, with an explanatory introduction and a series of carefully prepared headings,

arranged for entering every date and event pertaining to the farm, such as the result of each particular crop, and of each field, and every item useful for record and reference concerning domestic animals, &c. The book is ruled and arranged for entering the results of *twenty-five* years, from 1860 to 1884 inclusive. The need of such a book has long been felt; it will be of great service to the farmer, enabling him, almost at a glance, to ascertain the profit and loss of each and every operation of the farm. C. M. Saxton, Barker, & Co., No. 25 Park Row, New York. Price, in good substantial binding, $3; extra Russia, $5.

NEW MODE OF PRUNING GRAPE-VINES.—Mr. Bizzell writes us that we do not seem to have understood the advantages of the new mode of pruning Grape-vines, as set forth in his letter in our March number. We have read that letter again very carefully, and find that we did not fully comprehend one point relating to this mode of pruning. We are still of the opinion, however, that only the first bunches set would ripen here at the north; its advantages, therefore, would be confined to the south. It would be well, however, to try the experiment under glass here, and we should feel obliged if Mr. B. would go more into detail, and illustrate the modus operandi with drawings.

THE NEBRASKA FARMER.—This is a new candidate for public favor, which we take pleasure in commending. It is published monthly in the quarto form, (16 pages,) by Furnas & Lyanna, Brownville, Nebraska. The matter is varied and well made up. Terms, $1 per year.

"THAT JUICE."—We are now quite satisfied, Mr. Heyser, where some of "that juice" has gone to. Our publisher is a very polite and considerate man, and passed the samples to our "sanctum." That in the "slim bottle" is a very fair article of its kind; but the other (we "spare you not") is not so good by ever so much.

HONOLULU NECTARINE SQUASH.—We have received from Mr. I. W. Briggs, of West Macedon, a sample of this remarkable Squash, and find it truly excellent. It is as good as sugar candy—and better! We have never before seen anything like it, and could readily imagine we were eating some carefully prepared confection. We shall take precious good care of the seed.

A PRIZE ESSAY.—The prize of $50 offered by the American Institute for the best essay on the culture of the Native Grape, has been awarded to Mr. Phin, of Rochester.

GRAFTING-WAX—We have received a sample of Grafting-Wax from F. Trowbridge & Co., New Haven, Conn. It is a great convenience to have ready made for use a good article of this kind, one that can be readily and neatly applied. This seems to be just such an article, and we mean to give it a trial. It may be had of Saxton, Barker, & Co., No. 25 Park Row, at 40 cents per pound.

A NEW MODE OF PREPARING SHELLAC.—Take one part of spirits of ammonia and eight of water. Heat in a glue-pot nearly to the boiling point, and drop in the shellac, a little at a time, as fast as it melts, till you have got it of the right consistencey, which may be known by spreading some on a piece of glass. Bottle it, and it is always fit for use. It may at any time be diluted with water if too thick. It is to be used on wounds caused by pruning, &c., and is best applied with a brush. We are indebted for the above to Mr. Hite, who has given it a thorough trial.

DR. TABOR'S WINE.—We have just tasted some wine made by Dr. Tabor, of Hennepin, Ill. It is a very good article, and he ought to feel encouraged to go on with its manufacture.

SOME weeks ago we received a bottle of nice old Blackberry wine from somebody whose address we have mislaid. Who was it?

A HARD QUESTION.—"Can anything be done for saving the life of a hen when she has broken an egg in her?" asks one of our readers. How are we to know that such a catastrophe has happened? And what are we to do when we do know it? Give a dose of oil and apply one of Aunt Jemima's plasters? We give it up, and turn the subject over to some of our Shanghae friends for solution.

DR. KANE ROSE.—We have received from Mr. Pentland some specimens of this new Rose, with which we are greatly pleased. It is large and very double, being well filled in the centre. The color is sulphur yellow, and it is delightfully fragrant. We should deem it an acquisition.

SAINT PAUL (MIN.) HORTICULTURAL SOCIETY.—A Horticultural Society has been planted at Saint Paul in Minnesota. We hope it may grow up to be a great and flourishing institution in that far-off country, and produce much fruit. We are indebted to Mr. Buchanan, its President, for the proceedings which took place on the occasion, which we herewith print. The Constitution is a model for brevity.

At a meeting called by public notice, and held in the office of the County Auditor, for the purpose of forming a Horticultural Society for Saint Paul and vicinity, Alex. Buchanan was called to the Chair, and S. Hewson appointed Secretary.

On motion of L. M. Ford, and seconded by B. F. Hoyt, the following resolutions were adopted: *Resolved*, That in view of the importance of cultivating Fruit, Flowers, &c., in this State, and to aid in its support, we proceed to organize a Horticultural Society for Saint Paul and vicinity. *Resolved*, That a committee of three be appointed to draft a Constitution and By-Laws, and report at next meeting. The committee afterwards reported a Constitution, which was adopted, as follows:

CONSTITUTION.—*Article* 1. This Society is organized as the Horticultural Society of St. Paul and vicinity. *Art.* 2. The officers shall be a President, two Vice-Presidents, Secretary, Treasurer, and an Executive Committee of five. *Art.* 3. Regular meetings shall be held on the second Saturday in every month. *Art.* 4. The Annual meeting shall be held on the second Saturday of February. *Art.* 5. The payment of an admission fee of one dollar shall constitute a membership.

Officers were elected as follows: Alex. Buchanan, *President*; J. S. Prince, 1*st Vice-President*; C. H. Schurmeier, 2*d Vice-President*; Geo. Scatton, *Secretary*; J. W. M'Clung, *Treasurer*; L. M. Ford, H. L. Moss, T. M. Smith, M. D. Clark, S. Hewson, *Executive Committee.*

The Committee on the Constitution were instructed to report any alterations to the Constitution they may deem necessary.

The subject of "Strawberries" was selected for discussion at the next meeting.

Adjourned to the second Saturday in March, at the County Auditor's office.

S. HEWSON, Secretary.

THE thing that you want, Mr. McKnight, is the *Spergula pilifera*. You can get the seed of Bridgeman or Thorburn, New York, and probably others. Sow it lightly in shallow pots or boxes, under glass. In our next you shall have the rest of the information you ask for.

HENDERSON'S BOUQUET.—We have received two numbers of this splendid work from Mr. Geo. C. Thorburn, which we shall examine more carefully at our leisure.

IT will be seen by Mr. Barker's advertisement, that he purposes visiting Europe this spring, for the purpose of making collections of plants, &c. This presents a rare opportunity for gen-

tlemen who wish to add to their collections, since Mr. Barker's knowledge and good judgment will enable him to select judiciously.

CATALOGUES, &c., RECEIVED.

Bridgeman's Descriptive List of French Hybrid Gladiolus, and other Summer and Autumn Blooming Bulbs, supplementary to Catalogue No. 6. 878 Broadway, New York.—A very full list of these increasingly popular bulbs, embracing all the best kinds, with reliable descriptions of their characters.

Descriptive Catalogue of Fruit and Ornamental Trees, Shrubs, Roses, and Plants, cultivated and for sale at the Hermann Nursery, Hermann, Mo. Husmann & Manwaring, Proprietors.—A good, compact catalogue.

A Catalogue of Choice and Selected Flower Seeds, sold by E. G. Henderson & Son, Nurserymen, Seedsmen, and Florists to her Majesty the Queen. Also, a selected List of Agricultural and Vegetable Seeds, including all the leading and most approved varieties in cultivation. Wellington Road, St. John's Wood, London, N. W.—A compact, well arranged, and neatly printed Catalogue of 113 pages, embracing about everything worth having in the way of seed, both old and new.

Annual Circular of the Mount Vernon Iron Works. C. & J. Cooper, Proprietors, Mount Vernon, Ohio.—A catalogue of Saw-Mills, Sugar-Mills, Portable Engines, &c.

Descriptive Catalogue of Fruit and Ornamental Trees, Flowering Shrubs, Roses, Vines, and Creepers, Bedding-out Plants, &c., cultivated and for sale by F. Trowbridge & Co., proprietors, 103 Grand street, New Haven, Conn.—The contents of this catalogue are very choice.

John W. Adams's Catalogue of Flower-seeds, with brief Descriptions. Nursery and Greenhouses in Westbrook, on Forest Avenue, near Evergreen Cemetery and the Railroad station, two miles from Portland. Post-office address, Portland, Maine.—Contains all the leading old varieties, and many of the new ones.

Sanford's Circular for 1860. Agency for California Nurserymen, for the purchase of Goods and sale of Produce. Jason L. Sanford, San Francisco, Cal.

Descriptive Catalogue of the Rochester Commercial Nurseries, (established 1830.) H. E. Hooker & Co.—A very nicely printed Catalogue, embracing all the best varieties of Fruits, Ornamental Trees and Shrubs, Roses, &c.

Catalogue of Select Bedding Plants, Roses, Summer and Autumn Blooming Bulbs, and Herbaceous Plants, for sale at Bridgeman's Horticultural Establishment, Nos. 876 and 878 Broadway, New York. Nursery and Greenhouses, Astoria, L. I.—Contains a very good assortment of Dahlias, Verbenas, Petunias, Fuchsias, Scarlet Geraniums, &c. The collection of Herbaceous Plants is particularly choice and full.

Descriptive Catalogue of Fruit-Trees, Ornamental Trees, Shrubs, and Greenhouse Plants, cultivated and for sale by Hubbard and Davis, Detroit, Michigan.—Compact and good.

New List of Colored Plates of Fruits, Flowers, &c., (over 50 new plates added,) published and sold by D. M. Dewey, Agent, Rochester, N. Y.—We have never seen these plates, and can not speak of their merits.

List of valuable Ornamental Plants, cultivated by Negley & Co., Horticulturists, Pittsburgh, Pa.—Comprises a very choice assortment of Bedding Plants, including the best new kinds. Also, Phloxes, Fuchsias, Dahlias, &c., in good variety.

New Descriptive Catalogue of Fruit, Ornamental Trees, Vines, etc., cultivated and for sale by Cary, Peter, & Cary, at the Beargrass Nurseries, seven miles south-east of Louisville, near the Bardstown Turnpike, Kentucky.—Select, and neatly printed.

Descriptive Catalogue of Fruit and Ornamental Trees and Shrubs, Grape-Vines, Evergreens, Roses, Dahlias, Verbenas, and other Bedding Plants, &c., for sale at the Columbus

Nursery, by M. B. Bateman & Co., Columbus, Ohio.—A very fine and full collection of Trees, Shrubs, &c.

Swift's Improved Lawn Mowing Machine. H. N. Swift, Wiccapee Machine Works, Fishkill Landing, Dutchess Co., N. Y.—We have had several inquiries about Lawn Mowers. This is recommended by Mr. Sargent and others, and is said to be the best in use. The prices vary from $38 to $125.

Hansemond Sweet Potato Plants, for sale by C. B. Murray, Foster's Crossings, Warren County, Ohio.—This is among the best of Sweet Potatoes for northern planting, and has given much satisfaction.

Constitution and By-Laws of the Hamilton, C. W., Horticultural Society, established A. D. 1850, incorporated A. D. 1858, with the Tenth Annual Report, and the Prize Lists for 1860.—We judge from this that our Canadian brethren are progressing finely. We wish them every success.

Introductory Lecture to the Class of the Female Medical College of Pennsylvania, delivered at the Opening of the Tenth Annual Session, Oct. 19, 1859, by Ann Preston, M. D., Professor of Physiology and Hygiene. Published by the Lady Managers.—Woman has no equal in the sick-room, and there is a peculiar propriety in fitting her more fully, by education, for its duties, and in making her, in the true sense of the word, a physician.

The Journal of Rational Medicine.—Edited by C. H. Cleaveland, M. D., Cincinnati. Terms, $1 per year.

Correspondence.

The Maxatawny Grape.—We last month published a description of this new Grape by Dr. Brinckle. We have just received the following letter from Mr. Berckmans, which contains some interesting particulars in addition to those already published:

In the January number of this year, you mention the Maxatawny grape, and you ask if somebody can give you any information about that variety. I had supposed that some amateurs of Pennsylvania, acquainted with that fruit for the past three or four years, would have replied to your inquiry; but as I find no answer to the question in your just received number of this month. I venture to give you the little information I possess, by one year's experience; I do it because I think it the duty of every amateur of fruits to make known, as soon as possible,—that is, as soon as anything certain and reliable can be stated,—any variety that can add something to our pomological luxuries.

I tasted the fruit last season for the first time, and, through the kindness of a Philadelphia friend, I received a young vine in the same year, (1859).

I will first tell you about the vine before I mention the fruit, as I had that vine under my observation for a long time before I knew anything about the grape.

The layer I received was planted on high ground, not rich, but well sub-soiled, and started fairly about the middle of March. All the summer it grew with great vigor, and at the end of the season I believe that the different vines from that single small layer measured in extent over 60 feet; indeed, it took hold of all things standing within six feet distance, and overshadowed everything with its broad and profuse foliage. I consider it equal in vigor to our best southern growers, if not superior. Another summer will no doubt develop its full power of vegetation, the vine just out the ground being now four inches in circumference, strong and sound as a wild vine.

The foliage is very large, the outlines showing a foreign origin, while its downy cover under-

neath bears the unmistakable stamp of the American family. It is evidently a Hybrid from the Malaga, and, as such, giving promise of hardiness and adaptedness to our climate.

There can be no doubt that this excellent fruit will prove a first-rate grape for transportation. The Malaga grapes are sent all over Europe with perfect security. They are sold at exorbitant prices in St. Petersburgh, Russia, and are always kept, for a protracted season, in the best fruit stores of the large European cities.

I must think, and I am almost sure, that my vine is the first that has grown the other side of the so-called Southern division line; and I feel confident that I shall be able to test its merits fully in the coming season, when I shall also be able to send you the fruit as a test of its qualities and adaptedness for distant transportation.

I refer to my son for an accurate and technical description of leaves and fruit, as he has taken special notice of the growing vine and of the fruit sent to us in the latter part of September, 1859. He has deemed it worthy of large propagation, and I believe has potted every eye of the vines.

Bunches were received Sept. 28, 1859. Bunch medium, loose. Berries medium, oblong, greenish yellow, and transparent; have much water and some pulp; skin thin; flavor sweet, and partaking strongly of the Muscat grapes. Seeds large, and generally one in a berry. Its analogy with the Malaga le gros or jar grape of commerce, is very palpable, nearly the same fruit and same qualities for drying, as the berries will shrivel up, but will not rot. The wood is, however, very different, as its characters are unmistakably native. Yours, &c.,

L. E. BERCKMANS.

To the Editor of the Horticulturist:

SIR:—Upon reading the description and recommendation of Orchard Houses, by Mr. Rivers, in the June, July, and August numbers of the HORTICULTURIST for 1859, I felt a desire to attempt something of the kind for myself, although conscious of ignorance, and fearful that the production of fruit from trees grown in flower-pots would prove scarcely practicable in unskilled hands. Taking the estimate of cost, as given by Mr. Rivers, and Americanized by Mr. Smith, I proposed to a builder with whom I had previously had some dealings, to erect for me an Orchard House, of the moderate dimensions given as a standard, which he agreed to do at the estimated cost, except as to the posts, which I was to furnish, to make up for the greater cost of glass in this country. (I had supposed that glass of the kind required would be cheaper in this country than in England, but found the contrary to be the case.)

I preferred the lean-to form, wishing to place the house against the south wall of a stable, which would afford important protection against the cold in winter and early spring. The arrangement of the building, and the composition of the borders, were, as nearly as possible, those recommended by Mr. Rivers; and about the first of November I procured the trees and vines, to the number of about thirty, (for a house thirty by twelve and a half feet,) not placing them in pots exactly, but principally in boxes and kegs, by the advice of a horticultural friend. After the thorough soaking prescribed by Mr. Rivers, I left the trees to themselves, as directed—not a leaf to be seen, of course. When the severe frosts came, I began to remember how much more inclement our climate is than that of England, and forthwith had the trees set close together, and well-covered with salt hay, by way of mulch. But thus far there has been absolutely no frost in the Orchard House; no cold or snow that we have yet had having brought the temperature down much below 40°. On the contrary, the thermometer there is so often above 60°, that I sometimes fear the trees will think it spring, and burst out prematurely into bud.

My object in mentioning this my first attempt, is, to ask information as to American experience of Orchard Houses, since, considering the differences of climate, English plans and successes are hardly satisfactory to beginners as unpractised as myself. If any of your subscribers, who have actually raised fine fruit on dwarf trees in an Orchard House, would kindly describe methods

and results in your pages, it would be a favor to me, and doubtless many others of your readers.

I am encouraged to ask this by the sudden and wide-spread celebrity into which the Orchard House has sprung of late. We meet it everywhere; and even the *London Quarterly Review* has thought it worth while to recommend to its readers, what it calls the raising of "fruit for the million," at small cost of money or trouble.

It is, of course, more important in England to learn special modes of bringing delicate fruits to perfection, than in our country, where glowing suns do so much work for us with such success. But the experience of late years shows that the early warmth and late frosts of our springs, together with the premature frosts of early autumn, disappoint, in too many cases, our best endeavors and highest hopes. It is to remedy these evils that we want Orchard Houses; and if protection can be thus cheaply afforded, assuring us always of *some* peaches fresh from the tree, *some* unstung apricots and nectarines, and a few well-grown figs, to say nothing of winter pears and sweet grapes, we may consider ourselves amply rewarded. But in truth this, like other horticultural attempts, brings with it its own reward, in health and pleasure.

Perth Amboy, N. J. Yours, LEAFRING.

[Can any of our readers give Leafring the desired information? We feel confident that the management of Orchard Houses in this country must be varied from that recommended by Rivers for England, and those building Orchard Houses would do well to bear this in mind. Leafring seems to have taken hold of the subject with so much intelligence and spirit, that we are fain to believe that he will be among the first to give the information for which he himself now asks. We sincerely wish we could help him. We can give him suggestions, but we have nothing in the way of experience on this subject to offer him.—ED.]

ED. OF THE HORTICULTURIST:—In your March number there is a very interesting article on Heating Apparatus for Horticultural buildings. Short, practical, common-sense remarks of this kind have a great influence on the advancement of Horticulture. Presuming they are chiefly intended for amateurs and those without experience in such matters, great care should be taken by the authors not to be too sanguine until public opinion justifies presumption, and new inventions have stood the test of time. On that account I would invite you, as part of your editorial duties, to call upon all those who have had practical experience during the past winter, to state *facts* as to the working of the combined Saddle and Conical Boiler; and whether it has always been found what he claims it to be when compared with the improved conical boiler. I have myself in use a number 5 conical boiler, heating thoroughly little short of 900 feet of 4-inch pipe, which, for steady action, economy in fuel, and easy management, will be hard to beat. Now let us hear from all others interested, by a general call, through your flourishing magazine, that we may be fully convinced which is the best. NOBODY.

["Nobody" is right on the "boiler subject," which the reader can take as a *double entendre* or not, as he pleases; at all events, let us now hear what "everybody" has to say. Being appealed to on the score of duty, we call upon our readers to "steam up," and put their boilers in order for a thorough test. The subject is a warm one, but we hope our friends will keep cool and give us an impartial record. Our remark last month referred to the old Cone Boiler, and not to the one figured, as we have had no opportunity of seeing that. We mean, however, to examine them all.—ED.]

DETROIT, *March* 12, 1860.

EDIT. HORTICULTURIST:—My Grapery is 15 by 20 feet. In the illustration, No. 7 should be supports and braces. I have had several letters inquiring as to size of house, and would be obliged if you would give it for the information of those interested. A house, constructed after this plan, 30 feet in length, could be built for five dollars per running foot. This house answers very well, but I would prefer to have it a little higher, and would put a tier of glass—say 10 by

15—under the plates upon each side, and dispense with the glazing around the north end. Your suggestion of Kyanizing the timber is a good one. In Boston they Burnettize the timbers used in constructing horse railroads. They use spruce timber, and say, thus prepared, it will last fifty years. The February number of the Horticulturist was not received here until last week. I am very glad you design making it more *practical;* it will benefit a larger class, and I think increase the circulation. Respectfully yours, &c., A. C. HUBBARD.

[We print Mr. Hubbard's letter for the benefit of those of our readers who desire information in regard to his plan of a greenhouse. We do not know why you got the February number so late. We have received a good many complaints from Detroit, and the magazine has been sent to many of our subscribers there three several times without having reached its destination. Can the postmaster at Detroit shed any light on this dark subject?—ED.]

A WALK THROUGH DR. GRANT'S PEAR ORCHARD.—We have received from Solon Robinson, Esq., some very interesting and instructive notes of a visit to Iona, the residence of Dr. Grant. On account of their length we have been compelled to divide them. The portion now given contains Dr. Grant's opinion of what he esteems the best twenty varieties of Pears, which will be useful and interesting to such of our readers as are about making selections. We begin with a "good idea."

"That is a good idea. Can you walk, talk, write, and hear me, all at once? If you can, take your pencil and make notes as we go along. We will take them somewhat in the order of their time of ripening."

A LIST OF TWENTY PEARS FOR CULTIVATION—THE CHOICE OF ONE HUNDRED.

First-rate early summer pears are scarce. Erhard's Seedling, which the Tribune named the "Ravenswood Pear," gives excellent promise, but it is not yet disseminated and proved in various localities, so we cannot now head the list with it. The only bearing tree is in the possession of Charles F. Erhard, Ravenswood, L. I., having been found by him in the woods, and brought home and planted in the garden; the fruit proves one of the earliest pears known, and is as delicious as the Seckel. In time we shall hear more of this chance seedling. But now we will proceed with Dr. Grant's list of twenty standard pears for general cultivation.

No. 1. *Doyenné d'Eté* is a well-known early pear, ripening in wheat-harvest, and earlier than the Madeleine. It is extra beautiful; color, crimson and orange, upon yellow ground.

No. 2. *Beurré Giffard.*—This follows closely upon No. 1, and is larger, and every way superior. In fact, it is an excellent pear, of medium size, and in color beautiful, being crimson shaded upon green and yellow ground.

No. 3. *The Tyson Pear.*—This ripens a little later than No. 2, and proves here at five years after planting an abundant bearer. The tree is very vigorous and healthy, and its general appearance would be highly ornamental if it bore no fruit, but, as it does, it must be a very valuable variety. The fruit is of medium to large size, sugary and delicious, colored crimson on an orange cheek.

No. 4. *The Bartlett Pear.*—This is a large-sized pear, of the true pear shape. Those now at hand measure three to four inches long and two and a half to three inches through, and this is about the fair average. The fruit, when ripe, is a dark green, with some brown spots. It should then be picked from the tree, and as it is hard, may be barrelled, and will bear transportation well. When mature it is pale yellow, and is very juicy and sweet, and much esteemed by the mass of people, though it is not considered by fruit connoiseurs a pear of first-rate flavor. We consider it one of the very best for general cultivation. The tree grows rapidly, bears early, and its tendency is to overbear, which must be guarded against by picking off the young pears. The Bartlett is a general favorite as a market pear, and sells wholesale at ten to fifteen dollars a barrel. It matures early in September.

No. 5. *Flemish Beauty.*—This ripens next in succession to the Bartlett, and is one of the most

beautiful trees in fruit that ever grew. Its growth is very vigorous and healthy, and it is a great bearer; fruit large, greenish, often with red and crimson blush, yellowing when mature, which is from September 1 to October 1. It is almost equal in flavor to the old Vergouleuse—rather more aromatic, and universally esteemed.

No. 6. *Doyenné Boussock.*—This follows No. 5 in ripening, and is in every way excellent; the fruit large and beautiful, being the old Vergouleuse twice magnified. The tree grows rapidly, vigorous and healthy, and is one that every one can afford to plant, and will delight to see grow and bear.

No. 7. *Beurré Bosc.*—This is a magnificent pear, ripening the last of September; color beautiful cinnamon russet, always producing a good fair crop, but is not disposed to overbear.

No. 8. *Bloodgood.*—This is a small-sized pear, of fine aromatic flavor, and in point of ripening it might have been placed next to No. 2. The tree is not a very vigorous grower, nor is it an early bearer, but a good one in making up an assortment.

No. 9. *Dearborn's Seedling.*—This also ripens about with No. 8, or a little later, and of late years, in some localities, has not been as healthy as formerly, and therefore not as much in favor. The fruit, however, is delicious, has a very refreshing vinous flavor, is of small size, but the trees in good condition are very productive.

No. 10. *Rostiezer.*—This also follows close upon No. 2 in maturing, and is very high-flavored, juicy, small size, though larger than the Seckel, and not unlike that pear, which by many is considered the standard of excellence. The Rostiezer is more vinous and less musky, and many prefer it to the Seckel.

No. 11. *Paradise d'Automne.*—Those who desire to produce table-pears of a fine, rich, vinous character, will find this exactly what they want. It is juicy, melting, sugary, vinous, aromatic, and ripens in September. Color beautiful cinnamon russet. Trees often come from the nursery rather small, and it is considered a hard kind to propagate, but hardy when full-grown.

No. 12. *Buffum.*—This is nearly a substitute for the old Vergouleuse, which, without some immediate remedy, is destined to extinction. This is not quite equal in texture to that old standard of excellence, yet the fruit is very high-flavored, of medium size, and when mature of a deep, rich golden color, shaded with crimson. As an ornamental tree the Buffum is unequalled by any of the pear family.

No. 13. *Stevens's Genesee.*—This is another fair representative of the Vergouleuse; though its texture is coarser, it is probably a seedling of that, and produces large-sized, beautiful fruit, of excellent flavor. The trees grow vigorously and healthy, and are generally much esteemed.

No. 14. *Urbaniste.*—This pear ripens in October, and may, with a little care, be kept till winter, and is often thought better than the Vergouleuse. It is counted a tardy bearer, only producing at six or eight years old, and often not till twelve. The fruit is large, often crimson and reddish shaded on rich yellow ground, so that it is truly beautiful.

No. 15. *The Seckel.*—This is generally esteemed one of the most delicious pears that grows. It is high-flavored, juicy, vinous, and through October and November, when in perfection, gives intense satisfaction to those who appreciate good fruit. The tree is hardy, an abundant bearer; fruit small, dark green, with a mingling of iron rust and brown; sometimes beautifully shaded with crimson and orange.

No. 16. *Oswego Beurré.*—This pear ripens in November, and will keep till January, and when perfectly matured is a most excellent variety; is sufficiently sugary, rich, vinous, and melting. The fruit is small, and so apple-shaped as sometimes to be mistaken. On the tree, the fruit has a singular appearance, often hanging in ropes, not unlike bunches of onions.

No. 17. *Lawrence.*—This is another November to January pear, of medium size and beautiful appearance, of fine lemon-color, and often a crimson and orange cheek when mature. It is rich in sweetness, sufficiently vinous, and very distinctly aromatic in flavor. The tree is not remarkably vigorous, though a fine healthy grower, and generally productive.

No. 18. *Beurré Clairgeau.*—This is an early winter pear; the fruit is very attractive in appearance, being of large size, sweet, buttery, vinous, though not always melting. It is richly shaded crimson and fawn, upon a beautiful light orange ground.

No. 19. *Lewis.*—This is another first-rate winter pear, when grown upon aged trees, and always productive, but upon young trees the fruit is often woody, and so is condemned without a fair trial. It is of medium size, and a good keeper.

No. 20. *Winter Nelis.*—This may be considered the standard of winter pears, and is perfect in January, when it is rich, sugary, vinous, and unsurpassed by any other at that season. The tree is a slow grower, and does not appear very vigorous; naturally low, with drooping, wiry branches; always productive.

As a substitute for either of the late autumn varieties named, we would recommend *Belle Lucrative*, as it combines a rare assemblage of excellent qualities; in fact, some think it is unequalled. It has a rich, sugary flavor, and ripens in October; and the tree is vigorous and healthy, and if not suffered to overbear, always productive.

The above are all standards, and not recommended for dwarfs, of which we give a list, as follows, of six of the best sorts.

A LIST OF SIX DWARF PEARS.

No. 1. *Louise Bonne de Jersey.*—Amateurs need not be frightened at this long French name, as they can drop all but the Louise, which they will find "bon," whether of Jersey or any other island. It is always good, and often excellent and beautiful, of large size, ripening late in autumn and keeping in winter. It is esteemed as a profitable market-pear, and the tree grows vigorously and bears profusely.

No. 2. *Duchesse d'Angoulême.*—This tree is vigorous and productive, the fruit large and fine flavored—probably the highest of all the large pears. The quality is so much esteemed that its ordinary market-price is $12 to $15 a hundred. It is one of the sorts that should be in every gentleman's garden.

No. 3. *Buerré Diel.*—This, in size and quality, is almost equal to No. 2, and is often more rich and highly aromatic in its flavor, but not generally as productive.

No. 4. *The Kirtland.*—This excellent pear originated in Ohio, and was named in honor of Prof. Kirtland, of Cleveland. It makes a vigorous, healthy tree, and the fruit is in perfection through September; often ripe by August 20. It is of good size; bergamot shape; cinnamon russet color all over; is rich and refreshing to the taste; nearly melting; vinous and sugary enough to suit all lovers of sweet, rich pears.

No. 5. *Vicar of Winkfield.*—This pear is in high favor at Boston, and it certainly grows vigorously here, and makes a beautiful, productive tree. The fruit is called good, or very good, and as it matures at a time when good pears are most wanted, is esteemed a valuable sort for garden culture.

No. 6. *Easter Buerré.*—The vigor and productiveness of this tree is not so fully ascertained as some that we have recommended, and until we find a sort that can equal or surpass it in its first-rate quality, both for late keeping and good eating, it must hold its first rank. At present it is difficult to name a substitute for it.

There, we think we have made a list that we don't claim to be perfect, but one that will be very valuable to a great many people who desire to make a good selection, but have not anything to judge from that is reliable, and free from self-interest that sometimes governs nurserymen, which induces them to recommend such sorts as they have in greatest abundance.

If any object that our descriptions are not scientifically or pomologically worded "according to the book," we reply, we had no book to word from. What we have written is made up from notes taken in the orchard, and from recollection of familiar conversations with one of the best pomologists in the country, and from a little knowledge of our own, particularly in judging of the vigor and productiveness of the trees; and with such as were in perfection at the times we

have visited Doctor Grant's orchard, we have given our own impression of the effect upon the palate. Of others, recommended by the doctor, we have the fullest confidence, because he knew that we intended to write out and print our notes, and we are sure that he would not willingly say a word to deceive. He is an enthusiast upon fruit culture, and it would be his greatest delight to see it so extended that every family in the country could have at least as good an assortment of pears as we have here recommended.

An account of his success in propagating grapes we must defer to another article, which we trust will be very instructive and interesting. SOLON ROBINSON.

GRAFTING GRAPE-VINES.—At this time, when the subject of the grafting of grape-vines is commencing to attract so much attention, and when the old process of inarching is being revived by our gardeners and amateurs, it becomes of consequence to the operator to know which sort of stock is best to graft upon, or to inarch upon, with the scions of his valuable new varieties, whether under glass or out of doors.

The influence of the stock upon the growth and fertility of the scion engrafted upon it, has been a subject so freely discussed, that perhaps my experience may seem commonplace enough to your readers. It is well enough known, that engrafted upon mountain ash stock, the pear ripens its fruit much earlier; that upon Paradise stock the apple is both earlier ripened and higher colored than when upon its own roots. All the modes and effects of tree grafting are getting to be pretty thoroughly understood by our more practical nurserymen.

That the grape vine should be similarly affected in its growth, or productiveness, or earliness of ripening, is rather to be expected, and I hope that other gardeners will give their own experience in similar cases, that we may compare notes, and learn to emulate the success of some while avoiding the mistakes of others.

In the forcing-house and grapery which John Chorlton is managing for Joseph Hall, Esq., of Rochester, N. Y., it was decided to engraft upon one of the old stocks, a scion of the beauti ful Bowood Muscat grape-vines, imported and grown by Messrs. Bissell & Salter. After free discussion as to which stock it was most advisable to use, the Prince Albert was chosen, and the result has shown the wisdom of the choice. The Prince Albert is a very free grower, and the growth of the scion partook of the strong growth of the stock. The scion was inserted 13th March, and on 9th August the Bowood Muscat vine, at six inches from the graft and midway between two buds, was two and five-eighths inches in circumference. The scion had been twice stopped in its growth, and now stands fully fifteen feet of fine bearing wood.

By grafting on Prince Albert, or kindred stocks, we get a much stronger growth than upon any of the Sweetwater; and we repeat, that the selection of the stock is a very important matter to those who are desirous of having early and fine specimens of those new English grapes the Muscat Hamburgh, Bowood Muscat, and Golden Hamburgh. P.

[" P." will find elsewhere in our present number a very interesting article on grafting the Grape. We hope others of our readers, as suggested by P., will furnish the results of their experience on this important subject, which should be much better known than it is, comparatively few being even yet aware that the grape can be grafted at all. The case mentioned above shows strikingly its advantages.—ED.]

DWARF PEARS—DEEP PLANTING.—The article under this caption, Mr. Editor, in your February number, would, at first sight, appear to inculcate a doctrine greatly at variance with the practice of the most scientific and successful cultivators in the country, but, as I will endeavor to explain, you admit, in effect, the correctness of the *theory*, and, as I understand you, object to the *practice itself* in peculiar cases only.

You admit that "the true theory in planting Dwarf Pears is, to set them up to the point of junction *when the trees are worked low*, but otherwise to plant them as they stood in the nursery."

Permit me to examine the premises upon which you found the latter clause of your recommendation.

Deep planting, in the abstract, is, without doubt, one of the most serious, and, at the same time, one of the most common evils with which transplanted trees are forced to contend; and with your remarks upon this point in regard to trees in general, I fully concur. All reason is contrary to the practice, yet it is so much less trouble to set a tree upon the bottom of a hole prepared for it, without regard to the surface of the ground, than to make the calculation necessary to bring the tree to its proper level after the earth has settled, that I have found the greatest difficulty in inducing even good and careful workmen to plant trees as I wished, without personally superintending the operation; and I have even, in some cases, obliged them to take up and re-plant trees which were too deeply set, before I succeeded in having them placed as I directed.

The principle, in general, is too well established to require argument: respecting Dwarf Pears in particular, I think that the same *principle* holds good, but the *practice* requires, in some cases, slight modification.

Your opinion, Mr. Editor, would appear to be chiefly grounded upon your experience with trees obtained "many years ago," and "worked from fifteen to twenty inches high." I see nothing remarkable, or adverse to the usual practice of planting "up to the junction of the Quince and Pear," in the fact, that these trees, when so planted, refused to live and grow. I should consider it *more* wonderful if they had consented to do so. What tree *would* live for any length of time with twenty inches of its stem below the surface? No fruit-tree, certainly, that I am conversant with. I have observed several instances in this city, where a large proportion of the streets are planted with maples and elms, in which even these hardy trees—well established, and frequently of large size—have been destroyed by the "filling-in" rendered necessary by an alteration in the grade of the streets. And I had the satisfaction, a few years since, of rescuing a fine oak, of considerable size, from a like fate, by recommending to its proprietor the expediency of removing a portion of the mass of earth which had been placed upon its roots, which he did, in the form of a large concavity, to the manifest injury of his small inclosure, but the preservation of his valuable tree.

The truth of the matter is, simply, that a Dwarf Pear "worked at twenty inches" from the ground is totally unfit for planting in any manner, or under any circumstances, unless, indeed, it were the last of its race; and I am very much mistaken if any "leading nurseryman" would, nowadays, acknowledge that he grew any such trees. "When we first planted Dwarf Pears" the case was very different, and their culture and propagation were alike misunderstood. Instances are not yet extinct of the practice, then quite common, of growing dwarf trees in standard form, all the lower branches being persistently pruned away.

I was once so unfortunate as to be interested in a lot of imported trees, of the greater part of which the heads were as high as my own—some, indeed, higher. The worst of the matter was, that most of them being double-worked at standard height, pruning them down was an impossibility. And these trees were exported not many years since either, by a nurseryman who has undoubtedly sent more trees to this country than any other in France.

Now that dwarf culture is better understood, the stocks are worked as near as possible to the ground, rarely exceeding six inches above it. (Indeed, it would be difficult to work a Quince stock of the usual size at twenty inches.) Worked in this manner, the practice of planting at the junction is unquestionably the correct one. The Quince has been proved to possess a peculiar aptitude for emitting roots from the few inches of stem which was formerly above the surface; and it being generally a plant of but three or four years' growth from the cutting, the reasons which are in general valid against planting a tree more deeply than it formerly stood, do not in this case apply with equal force.

A dwarf of proper age for removal will usually be found well furnished with roots, especially

near the surface. If not previously root-pruned, there may, very probably, be from ten to twelve inches—possibly more—of stem, constituting the lower end of the cutting below the surface. A portion of this is worse than useless to the tree in the end, even if it is of some slight present benefit. Being so far below the influence of the sun and atmosphere, as they necessarily will if the tree is planted properly in other respects, the lower roots, if not in a peculiarly dry soil, will shortly decay, (as you found to be the case, Mr. Editor, with your own trees,) and endanger, if not destroy, the life of the tree.

By amputating the stem at six or eight inches below the surface, a sufficient number of roots will generally be left to support the tree, if the branches have been properly reduced; and if then planted at the junction, new roots will almost invariably be emitted up to that point. In this way the roots are kept near the surface, where they are most needed, the health of the tree is enhanced, and any subsequent removal rendered much more feasible.

A by no means unimportant point in thus burying the stock, is its protection by that means from the borer, which, if ever so little of the Quince is above ground, will be very apt, and in some locations quite certain, to discover the fact, and effect a lodgment. Many failures which are attributed to other causes are undoubtedly owing, in reality, to the depredations of this insect; for, having once effected an entrance, he labors in safety from any but the most careful examination, the perforations, when near the surface, and the inconsiderable excretions, being, perhaps, concealed from a passing glance, by the swelling commonly arising at the union of the Pear and Quince.

It is somewhat singular that, while the insect rarely perforates the *bark* of the Pear, he is by no means averse to preying upon its *wood*, after he has safely reached the interior of the stem through the Quince. Working directly upward, he, in some cases, as I have discovered in amputating in order to graft, reaches a point five feet or more from the ground. How are we to attack an enemy thus securely entrenched? I scarcely think that either the "barbed wire," which is frequently effectual, or any other generally known remedy, would apply to such a case.

JNO. B. EATON.

[We are glad Mr. Eaton took a second sight at our Pear article, and got at our real meaning, for we should be sorry to be classed among any but those who go in for improved culture. In most respects he confirms the points we made. We regard deep planting in the abstract and in all respects a great evil, and can not perceive why an exception should be made in favor of the Dwarf Pear. If there is any good reason for it, we have yet to be convinced. We know that the Quince will throw out roots from the stock when buried in the ground, and so stated; but this can hardly be used as a legitimate argument in favor of deep planting, when we know that while these new roots are being made, the tree often becomes diseased and dies.

Mr. Eaton is quite mistaken in supposing our opinions are chiefly based upon our experience with trees obtained "many years ago." We cited that case as a matter of convenience, but stated that we had frequently seen it verified since; and though he wonders at it, he almost immediately cites an analogous case himself. Now we will state, for Mr. Eaton's information, that since "many years ago," we have planted many hundreds of Dwarf Pears, and have seen thousands more on the grounds of our friends; we have been a somewhat close observer, and have seen very many such cases as we speak of in our Pear article. From experiments which we have made with some of these, we have no doubt at all that, in the majority of cases, deep planting was the chief cause of the diseased condition of the trees. We have already stated that we prefer to plant up to the "junction" when it can be *properly* done, because we think the Dwarf Pear is longer lived when thus planted; but we can not ignore the fact, that the Dwarf Pear will grow vigorously and produce abundant crops of fine fruit with the quince stock several inches out of ground. The pears that for several years past have taken most of the first prizes for specimens at our Horticultural exhibitions in New York, were grown on trees with from two to six inches of the quince stock above ground; and this is not a singu-

lar instance. We say nothing here about culture; we simply allude to facts within our knowledge; and it is because of such facts that we recommend Dwarf Pears to be planted as they stood in the nursery when they are worked too high to be *properly* planted up to the "junction." In deep planting, the chance of success decreases with the age of the tree.

Mr. Eaton seems to think that high-worked trees are not now to be found; but in this he is wrong. We already have an acknowledgment from one large grower, that he is "convinced he works his trees too high." We do not say, or intimate in any way whatever, that leading and intelligent nurserymen now work their trees fifteen or twenty inches high; we know many of them, and are familiar with their stock, and readily admit that their Pears are mostly worked at what may be called a reasonable height; but we do say, of our own personal knowledge, broadly, flatly, and emphatically, that hundreds and hundreds of trees, worked from six to twelve inches high, are annually sold; they are planted deep, often fail, and throw discredit on Dwarf Pear culture. That is all plain enough to us; and we can not help thinking, in view of our own experience, and all we have heard on the subject *pro* and *con*, that the success of Dwarf Pear culture would have been immensely greater if trees had never been worked more than two or three inches high; reasonable success, however, ought to be met with when they are worked even four or five. In our second article on Dwarf Pears, we have named five inches as the maximum height; we at first wrote it lower, and are almost sorry we altered it. What we wish is simply this: that in recommending the planting of Dwarf Pears, a caution shall be added in the case of high-worked trees. This we conceive to be reasonable and proper. It may not be necessary in the case of Mr. Eaton or the Editor of the HORTICULTURIST, but it is in the cases of thousands of others.—ED.]

Editor's Drawer.

IMPORTANT SALE OF PLANTS AT COOPER'S HILL, ENGLEFIELD GREEN.—The first portion of a magnificent collection of Azaleas, and other stove and greenhouse plants, was recently brought to the hammer here by Mr. Stevens. Of Azaleas, Glory of Sunning Hill, 3 feet 6 inches high, and as much through, fetched 11*l.*; Murrayana, 9*l.*; Perryana, 7*l.* 10*s.*; optima, 6*l.* 10*s.*; Gledstanesi, 5*l.* 15*s.*; variegata, 5*l.*; lateritia, 5*l.* 5*s.*; alba magna, 5*l.* 15*s.*; sinensis, 5*l.*; and other lots from 2*l.* 2*s.* to 3*l.* 10*s.* Of other plants, Acrophyllum venosum, 3 feet high and about as much through, fetched 7*l.* 10*s.*; the Willow-leaved Ixora, 6*l.*; Genetyllis macrostegia, 5*l.* 10*s.*; Aphelexis macrantha rosea, one of the finest plants in the country, 9*l.*; A. m. purpurea, 5*l.* 10*s.*; A. m. grandiflora, 4*l.* 15*s.*; Rondeletia speciosa, 4*l.* 10*s.*; Tetratheca ericoides, 3*l.* 7*s.* 6*d.*; Erica jubata, 2*l.* 4*s.*; Maranta zebrina, 2*l.* 10*s.*; Pandanus javanicus variegatus, 3*l.* 10*s.*; Epacris miniata grandiflora, 3*l.* 10*s.*; E. m. splendens, 2*l.* 6*s.*; Pimelea mirabilis, 2*l.*; P. Hendersoni, 2*l.* 6*s.*; Eriostemon buxifolium, 2*l.* 2*s.*; and Adenandra speciosa, 2*l.* 6*s.* Other lots, of which there were in all 202, fetched from 10*s.* to 30*s.* per lot; and the produce of the whole sale amounted to upwards of 300*l.*—*Cottage Gardener.*

RANSOME'S PATENT STONE.—It is said that specimens of this material have been exposed to the weather for twelve years without the least appearance of decay or deterioration. From what has been stated it will be evident that the patentee, by varying the fineness or coarseness of his sand, has the power of producing all varieties of artificial stone, from fine sandstone to the coarser millstone grit. In short, the uses and modes of applying this stone are endless. We have statuary of it, vases of elegant shape, kerb stones, fountains, and a variety of other objects, all of an ornamental character, for which it is well suited. Austin & Seeley's flower baskets, tazzas, and vases are beautiful works of art, especially the former, some of which are of unusual size. Having been filled with flowers and placed on one of the broad gravel walks, they produced a singularly rich effect. One or two light-looking handsome vases, and other decorative objects made of cast-iron painted cream-color, are in use.

THE HORTICULTURIST ADVERTISER.

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"	Six do.	45 00
"	Twelve do.	80 00

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Index to Advertisements.

Adams, John W., Portland, Me., ... 21
Albany Tile Works, ... 24
American Stock Journal, ... 34
Baker & Smith's Steam Heater, ... 36
Barker, Daniel, ... 2
Barnes & Washburn, Har'son Sq're, Mass., 41, 44
Bliss, B. K., Springfield, Mass., ... 42, 43, 50
Breck & Son, North Market St., Boston, Mass., 29
Bridgeman, Andrew, ... 47, 52
Briggs, J. W., West Macedon, N. Y., ... 2
Bright on the Grape, ... 33
Buchanan, Isaac, New York, ... 21
Carpenter, H. & J., Poughkeepsie, N. Y. 25
Cast-Iron Vases, ... 10
Daniels, H., ... 22
Decker, Edward, New Brighton, S. I., ... 13
Empire Heater Works, 450 Broadway, New York, ... 49
Encaustic Tiles, (Miller & Coates), ... 11
Erhard's Ravenswood Pear, ... 50
Ferris, W. L., Throg's Neck, N. Y., ... 44
Gas for the Country, ... 8
Gishurst's Patent Compound, ... 34
Grant, C. W., Iona, N. Y., ... 15
Griffing Brothers & Co., ... 29, 48
Griscome, David J., Woodbury, N. J., ... 17
Grover & Baker, ... 45
Gutta Percha and Glass Roofing Co., 3
Harper & Brothers, Publishers, New York, 39
Harrison's Ranges, ... 38
Harris, Joseph, Rochester, N. Y., ... 51
Henderson, Peter, Jersey City, ... 14, 22
Hitchings and King, Centre St., N. Y., ... 35
Hooker & Co., Rochester, N. Y., ... 25
Hoopes & Bro., West Chester, Pa., ... 27
Hot Water Apparatus, Wilson's, ... 26
Hot Water Furnace, ... 32
Hovey & Co., Boston, ... 6, 7, 16
Janes, Fowler, Kirtland & Co., ... 5
Kimber, Geo. D., Flush'ng, N. Y., ... 51
Knox, J., Pittsburg, Pa., ... 31
Lawson & Son, London, England, ... 22
Lawton, Wm., New Rochelle, N. Y., ... 21
Marshall, C. S., 66 William Street, N. Y., ... 22
Marshall, Edwin, Poughkeepsie, N. Y., ...15, 52
McIlvain & Young, 9 John Street, N. Y., ... 12
Meehan, Thomas, Germantown, Pa., ...12, 15
Merriam, J. P., Sandusky City, O., ... 21
Munn, Mr., ... 21
Murray, C. B., Foster's Crossings, N. Y., ... 11
Nealley Brothers and Bock, Burlington, Iowa, ... 31
Negley and Co., Pittsburg, Pa., ... 4
Newark Nurseries, ... 24
Patent Smoothing Iron, ... 12
Pentland, James, Baltimore, Md., ... 40
Polar Refrigerators, ... 9
Potter & Co., Knowlesville, N. Y., ... 2
Prince and Co., Flushing, N. Y., ...2, 14, 33, 50
Reagles & Son., Schenectady, N. Y., ... 24
Reid, Wm., Elizabethtown, N. J., ... 27
Rural Annual, ... 41
Saeltzer and Valtz, Architects, New York, .. 23
Sardy, John B., (Guano) 17
Saul, A., Highland Nurseries, Newburg, ... 37
Saul, John, Washington City, D. C., ... 13
Saunders, Wm., Germantown, Pa., ... 45
Schwartz, Charles, ... 17
Sidney & Adams, 520 Walnut Street, Phila., 18
Snow, Dexter, Chicopee, Mass., ... 28
Spooner, W. H., Jr., Jamaica Plain, Mass., 11
Stearns & Marvin, ... 48
Stodart Piano Fortes, ... 20
Strong, W. C., Brighton, Mass., ... 23
Thorburn, J. M., & Co., ...(4 p. cover.) 46
Ward, T. G., Washington, D. C., ... 45
Warren & Carpenter, San Francisco, ... 21
Wethered & Cherevoy, 117 Prince St., N.Y. 19
Wheeler & Wilson's Sewing Machines, ... 46
Wilson, John, Albany Nursery, ... 44

Index to Advertisements at the beginning of this Number.

Hitchings & King, Centre St., N. Y., ... 7 | **Wheeler, Melick & Co.,** 8

Horticultural Agency.

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Full particulars upon application. All letters of inquiry, to receive attention, must enclose a 3-cent stamp.

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Hartford, Conn.

Box 747.
April, May.

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Seeds of this remarkable Vine Fruit—unequalled in the strength and purity of its saccharine in the entire Squash family—can be obtained of the subscriber ONLY. We will send to any applicant a sample of the dried Nectar, by mail, free, and seeds from 3 to any desired number, at $1 per dozen, to any address in the United States or Canadas, post paid.

We have also introduced another new variety, from Mexico, and named it "Pine-apple," from its shape. This Squash is prolific, early, delicate cream color. Skin tender as an apple, and is equally good for summer or for winter use, making a delicious dish in all stages of its growth to perfect maturity.

And yet another summer variety, which we call "Snow Ball," very prolific, and in bearing till frost. We had over one hundred ripe specimens from a single plant, and numerous unripe ones. Seeds of these two varieties we will mail, as above, at 50 cents per doz.; or for One Dollar we will send a package of each, and one of the celebrated Hubbard Squash, or some other rare seeds of our own selection. Address,

J. W. BRIGGS,
West Macedon, Wayne Co., N. Y.

April.

Large Standard Pears,

Mostly 10 to 15 feet high, 8 to 10 years grafted, embracing Bartlett and all the leading varieties, at $1 50 to $3.

PYRAMID AND DWARF PEARS, of large size, in a bearing state, comprising all the leading varieties, at $1 25 to $1 50; Trees 3 to 4 years $38 per 100, and 5 years 75 cts. to $1.

APPLES, of all the varieties, 12 to 14 ft., 8 years grafted, at 50 cents.

PLUMS, extra large, $1.

PEACHES, NECTARINES and APRICOTS in a bearing state.

CHERRIES, extra large Standards and Dwarfs, 50 cents to 75 cents.

April. **WM. R. PRINCE & CO., Flushing, N. Y.**

HARDY NATIVE GRAPES.

The ONTARIO is the largest and best Native Grape in America. Bunches and Berries enormously large; flavor best. Price, single plants (one year old), $3; $35 per dozen.

We are prepared to furnish most of the New Grapes (true to name); also, Hop Trees from 3 to 4 years old. Send stamp for Price List of 150 varieties of Grapes.

Address,

A. W. POTTER & CO.,
Grapelawn Nurseries, Knowlesville, Orleans Co., N. Y.

April.

OFFICE OF

GUTTA PERCHA AND GLASS ROOFING CO.,

23 CEDAR STREET, NEW YORK.

The rapid increase of building in this country has led to the adoption of many different forms of Roofing. Slate, shingle, and metal roofs, do not give perfect satisfaction; it has been requisite to invent an article, that should be at once water-proof, elastic, cheap, and durable. This Company furnish a Roofing which combines all these requisites. This is manufactured and sent in rolls, which are to be nailed on the roof-boards: it is itself water-proof, but a sufficient quantity of liquid cement is sent with it, to cover it with a final coat: this is usually sanded as it is applied, and this finishes a perfect roof, as durable as the building it covers.

The cloth is the thickest and strongest woven material ever used in roofing; but the weight of the finished roof is not more than about 1 lb. to the square foot of surface. These roofs can be steep or flat, or of any required inclination.

This Roofing is furnished to those who sell again, at so low a price, that they make an unusual profit, and yet, the cost to the consumer is about *half* that of tin, and far less than slate, shingles, or any other roofing material. As an extraordinary profit is afforded to dealers, as the labor of putting on the roofing is very slight, and as the roofs are in every respect satisfactory, it is found that wherever these materials are introduced, they very soon come into general use.

The Company also furnish Liquid Gutta Percha Cement, which is found preferable to paint (as it lasts ten times as long) to cover tin roofs, protecting them for many years against rust, and rendering them perfectly water-tight. This article gives a heavy profit to the dealer, and is very cheap to the consumer.

The Roofing and the Cement have stood the test of time. Most of the parties who were first engaged in this enterprise (and from whom this company bought the patents under which it now operates) have manufactured, sold and applied these materials during many years: the roofs become firmer and more solid every year, and any number of testimonials can be furnished as to their merits.

Any party interested in roofing, and addressing a line to the office of this company, will receive a list of prices and terms, samples of materials, and any desirable information sent as directed.

Attention is called to the Removal of our Office to No. 23 CEDAR STREET.

Gutta Percha and Glass Roofing Co.,

WM. C. WYCKOFF, Sec.

CHEAP BEDDING PLANTS.

NEGLEY & CO.,

Pittsburgh, Pa.,

Offer a valuable assortment of Ornamental Plants and Flower Seeds at lowest rates. The descriptions and prices given in our Spring Catalogue. Amongst the many novelties will be found the following gems, viz.:

PHLOXES.—Blanche, Julia Roussell, La Volupte, Mme. Guerzon, Triumphe de Beauty, Eliza Fontaine, Souvenir de 30 Octobre, Admiral Dundas, Casl. of Home, &c.

CHRYSANTHEMUMS.—Massaniello, Sunset, Queen of Beauties, Miss Towers, Magic Flute, Kenilworth, St. Justia Satinello, Miss Dix, Golden Queen, Prince Albert, Brilliant, Thetis, Prougne, Versailles, &c., &c.

FUCHSIAS.—Crown Jewel, Isa Craig, Stradella, &c.

GERANIUMS.—President and Mrs. Negley.

DAHLIAS.—Sebastopol, Royal Scarlet, Queen of Roses, Charles Perry, Forget-Me-Not, Prince Albert, King of Yellows, Queen of Tyre, &c.

ROSES.—Adelaide Fontaine, Pauline Lansezeur, Duke of Cambridge, P. Moss, Mme. Ed. d'Ory, &c., &c.

HELIOTROPES.—Mme. Cassenave, Etoile de Venus, Jean Mesmer, General Valhubert, Splendidum, Empress Eugenie, Florence Nightingale, Ne plus Ultra, Roi les Heliotropes, &c.

GLADIOLA BRENCHLEYENSIS—gorgeous vermillion.

SALVIA SOUCHET—Dwarf, dazzling scarlet.

ANTIRRHINUMS—Napoleon and Eva, extra fine.

DELPHINIUM FORMOSUM—very cheap.

PETUNIA.—Alleghany (J. Ferguson)—Bright crimson purple, with a bold, defined, pure white broad band or margin, extending in depth on the points of the petals; large flower, good substance, and free flowering. This interesting and remarkable novelty is now sent out for the first time, and is recommended as a great acquisition. Single plants, 50 cents; $4 50 per dozen.

VERBENAS.—Etoile des Jardines—Rich satin rose, with a large bright, yellow eye immense flower and truss; one of the largest and most showy varieties in cultivation.

Gloire de Belle Vue—Vivid maroon crimson, large, white eye, fine flower and truss, excellent habit; the best Verbena of its class.

Estella—Reddish crimson, distinct white eye, flowers singularly cupped; showy and distinct.

Belle d'Orleans—Surpasses the beautiful Evening Star, deeper crimson, larger white eye, and stronger habit; very fine.

La Favorite—Light purple, large white eye, rather dwarf habit; very constant and free flowering variety.

Emperor Napoleon—Rose shaded with cherry, conspicuous eye, large truss and strong habit.

Inez—Deep rose centre, shaded with velvet crimson, large flower and truss.

Fragrantissima—White with a slight shade of violet, quite fragrant, and looks well in masses.

Carnation—White with a shade of pink, centre purple crimson; a showy variety.

Ruby Queen—Light carmine, large white eye, flowers profuse; an exquisite variety.

Lily—Light lilac, extra large truss, and strong habit.

Queen Victoria—Rosy purple, large distinct yellow eye, fine flower and truss.

Etonia—Rich indigo purple, large pure white eye, good habit, flower and truss with profuse bloom; retains its color in all weather; *an extra fine bedding variety.*

Gold Striped Defiance—A distinctly variegated leaved plant, being rich blotched and striped with golden yellow; a beautiful bedding plant.

FLOWER SEEDS.

Selection of a few novel, distinct, and really useful favorites, adapted for every garden. The seeds have been freshly imported from the most extensive seed establishment in Prussia, and may be relied upon as good. The list is confined to those varieties we have tested ourselves, which will save the inexperienced useless expense, which is the case in nearly every purchase of flower seeds. First quality seeds are always high priced, therefore the packets are of reasonable size.

Purchasers will find our Balsam, Aster, and Indian Pink Seed unsurpassed in excel'ence.

Apr.

JANES, FOWLER, KIRTLAND & CO.,

Late JANES, BEEBE & CO.,

356 BROADWAY, NEW YORK,

Have now ready for Inspection an Unusual Variety of Articles of their own Manufacture,

FOR THE

EMBELLISHMENT OF COUNTRY RESIDENCES,

FOUNTAINS,

GARDEN VASE,

SUMMER-HOUSES,

SETTEES, CHAIRS, ETC.,

OF IRON.

CHEAP, BEAUTIFUL, AND IMPERISHABLE.

CATALOGUES SENT BY MAIL.

Persons visiting the city are Invited to call and examine the Articles, whether they Purchase or not.

JANES, FOWLER, KIRTLAND & CO.,

356 Broadway, New York.

Apr., May, & June.

New and Choice Flower Seeds.

HOVEY & CO.,

7 MERCHANTS' ROW, BOSTON,

Have received from their correspondents in London and on the Continent, a large and splendid assortment of Flower Seeds, among which, of special interest, are the following novel and beautiful kinds:

DIANTHUS HEDDEWIGI. A splendid and brilliant-flowered Pink from Japan, of neat, dwarf, compact habit, with numerous large, even-margined blossoms, nearly three inches in diameter; of various shades of rose, carmine, crimson violet and rich maroon, some self-colored, others finely marbled with white, and bloom profusely from June to October. Per packet, 50 cents.

DIANTHUS LACINIATUS. Also introduced from Japan. This very remarkable and splendid variety forms a taller plant than the preceding, nearly two feet in height, with magnificent large flowers, elegantly fringed, and of the richest and most diversified colors, from pure white, pink and bright rose, to the most brilliant shades of red, carmine, violet, purple, and maroon, many of them beautifully striped and spotted. Flowers throughout the summer and autumn. 50 cents.

DIANTHUS HEDDEWIGI GIGANTEA. Another variety raised by the same grower, and producing colossal sized flowers, of similar brilliant colors and shades. 50 cents.

CLARKIA PULCHERRIMA. A splendid new variety of Clarkia pulchella, with large bright crimson flowers, blooming profusely for a long period. 25 cents.

CLARKIA PULCHELLA, var. integripetala. Another new and distinct variety, with entire lobed, rosy violet blossoms, nearly double the size of C. pulchella, and much more brilliant in color. 25 cents.

HELIOPHILLA STRICTA. A new and very handsome annual, with fine rich blue flowers. 25 cents.

SCHIZANTHUS GRANDIFLORUS OCULATUS, fine large purple flowers, beautifully marked with a dense dark blotch—a great improvement in size of flower and brilliancy of color on the old varieties. 25 cents.

NIGELLA HISPANICA ATROPURPUREA. A new variety, of erect and compact habit, and clear rich purple flowers, recommended as being fine. 25 cents.

CALLIRHOE PEDATA AND DIGITATA (Nuttalia.) Two new and beautiful summer flowering plants, 2 to 3 feet high, with rich crimson cup-shaped blossoms, very attractive throughout the season. 25 cents.

SILENE BARBATA. A new variety of these favorite and free blooming plants, with fine heads of rich pink flowers. Silene pseudo-atocion, another very handsome species, producing rich rosy flowers in profusion—very fine for masses or groups. 25 cents.

CLARK'S NEW HYBRID SWEET PEA. Upper petals of the flowers clear rose-color, and the lower ones white, margined with blue. 25 cents.

STATICE BONDUELLI. One of the most distinct and pretty of these admired plants; of compact habit, with a profusion of bright sulphur yellow flowers, and remaining in bloom several months. 25 cents.

SPRAGUEA UMBELLATA. A new and very beautiful dwarf plant of Calendrina-like habit, with umbels of small, rich, purple violet blossoms. It is suited for pot or border culture. 25 cents.

ANAGALLIS GRANDIFLORA, var. Eugenie and Napoleon III. Two beautiful varieties of this pretty favorite, with large, rich, blue and crimson flowers, finely adapted for vases, ornamental baskets, rock work, &c. 25 cents.

IPOMEA LIMBATA ELEGANTISSIMA. A beautiful new variety, the flowers intense violet blue, margined with pure white. 25 cents.

IPOMEA HEDERACEA GRANDIFLORA. Flowers brilliant sky blue, with white margin, one of the most beautiful annual climbing plants. 25 cents.

TROPÆOLUM, Tom Thumb Scarlet, Tom Thumb Yellow, and Tom Thumb Beauty. These brilliant-flowered dwarf varieties are particularly adapted for showy groups, or for growing in pots and ornamental vases, forming compact round tufts and flowering in great profusion, until cut off by frost. Each variety separate, 25 cents.

(See next page.)

FLORISTS' FLOWERS,

Consisting of the very choicest varieties, derived from the best collections in England, France and Germany. The great improvement which has been made in this class of flowers, and their importance for greenhouse and garden culture, render it necessary that selections should be made with the greatest care, that their reproduction may be relied upon. The following are offered as of this description:

AURICULA, from the very finest varieties,	25
CALCEOLARIA, herbaceous, from E. G. Henderson & Son's unrivalled collection, containing the richest and most distinctly marked colors,	50
—— Shrubby, from the same collection,	50
—— Herbaceous and Shrubby, from other fine collections, each	25
CARNATIONS, saved from the best prize flowers,	50
—— extra fine selection, all colors,	25
—— PICOTEES, from the very finest flowers,	25
—— PERPETUAL or MONTHLY, mixed colors, fine,	25
CINERARIA, from the very finest named varieties,	25
CHRYSANTHEMUM, Large-flowered, from fine varieties,	25
—— Pompone, from the best varieties, both saved in the South of Europe,	25
DAHLIAS, from the finest English and French fancy flowers,	25
—— Lilliput, unique for bedding, with very small Ranunculus-shaped flowers,	25
DAISIES, extra fine, from a very fine collection,	25
GERANIUM, Show Flowers, from the best exhibition flowers,	25
—— Fancy Flowers, extra fine, mixed colors,	25
—— French spotted, beautiful,	25
—— Zonale, or horseshoe, all colors,	25
—— —— variegated-leaved, from 20 new varieties,	25
GLADIOLUS, saved from our own collection of 80 of the most superb varieties,	25
HOLLYHOCKS, from the best prize flowers,	25
PANSY, from the finest exhibition flowers,	25
—— Fancy flowers, curious colors and striped,	25
—— French blotched, extra fine, blotched and striped,	50
PETUNIA, extra new blotched, spotted and striped,	25
PINKS, from a superb collection of named flowers,	25
POLYANTHUS, from the finest and most perfect flowers,	25
PRIMULA SINENSIS FIMBRIATA, saved from the very largest and most beautiful prize flowers, improved by careful selection of the best varieties, white and crimson, each,	25
SNAPDRAGON, from the most beautiful striped flowers,	25
VERBENA, from our own collection of 150 of the finest named varieties in cultivation	25
—— —— from the best European collections,	25

AN UNRIVALLED COLLECTION OF

PÆONY-FLOWERED ASTERS,

Of our own raising, far surpassing any of the imported varieties, having made the cultivation of this beautiful flower a specialty.

16 of the most beautiful varieties,	$1 25
12 " " " "	1 00
8 " " " "	75

GERMAN FLOWER SEEDS,

IN COLLECTIONS,

Received direct from one of the most celebrated growers of these beautiful flowers in Germany, and which have heretofore given so much satisfaction.

ASTERS, 8 var. splendid Large-flowered,	50
8 " Truffaut's Pæony do.	50
8 " new tall Chrysanthemum flowered,	75
8 " new Dwarf do. do.	50
8 " new tall Ranunculus do.	50
4 " new do. do. do.	25
8 " new Imbricated large do.	75
4 " new Crown do.	25
4 " new Hedgehog do.	25
STOCKS, 16 var. German, extra fine, double,	1 00
8 " do. do. do.	50
BALSAMS, 12 var. Double Camellia flowered, extra fine,	75
12 " new Improved Rose do.	75

Also, a great variety of all the choicest and most popular FLOWER SEEDS in cultivation, and a large stock of the best VEGETABLE SEEDS; and a very choice assortment of Greenhouse and Bedding Plants, including the newest varieties of Verbenas, double and single Petunias, variegated and scarlet Geraniums, Lantanas, Hollyhocks, &c., &c.

Catalogues gratis on application. Apr.

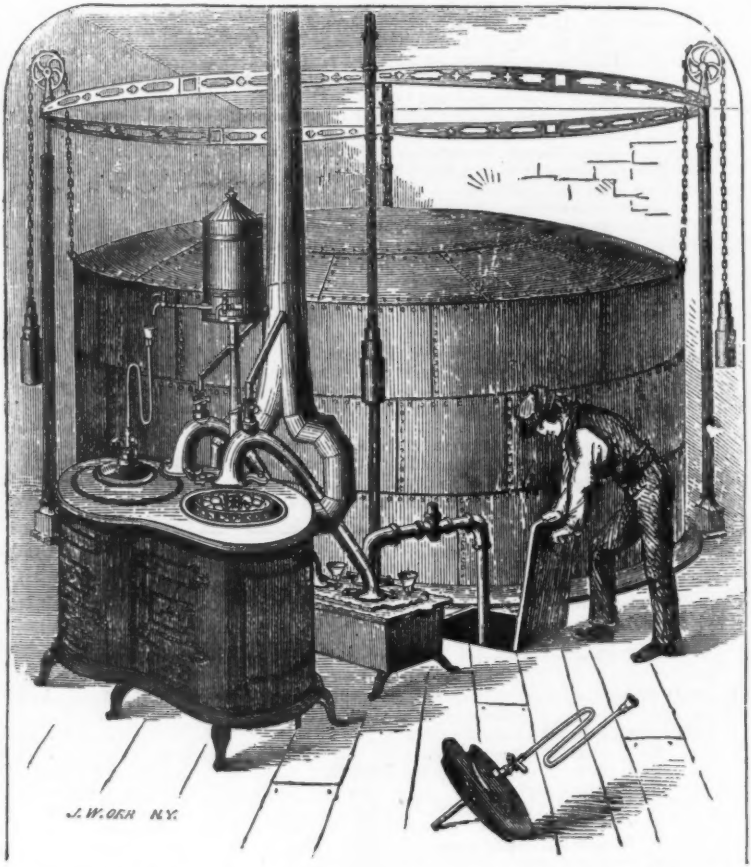
GAS FOR THE COUNTRY.

C. WOOSTER,

MANUFACTURER OF

COATE'S IMPROVED PORTABLE GAS MACHINES,

OFFICE, No. 180 CENTRE ST., N. Y.,



This Apparatus has been in successful operation in many of the best Residences and Factories in the country, and recently patented improvements, adapting it to the use of Crude Rosin, or Rosin Oil, have given it advantages over any other machine in use.

C. WOOSTER is also prepared to erect Coal Gas Works of the most approved kind.

For Particulars and Descriptive Pamphlet, apply by letter or otherwise at

No. 180 CENTRE, NEW YORK,

Where reference to numerous parties now using the apparatus will be given.

Feb., Mch. & Apr.

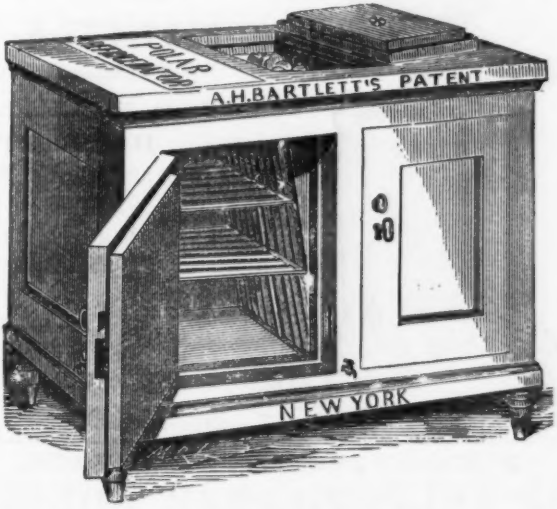
THE

POLAR REFRIGERATORS,

With Filter and Water-Cooler Combined,

INVOLVING IMPORTANT PRINCIPLES

NEVER BEFORE ATTAINED,



Which enables Meats, Fish, Milk, Vegetables, Fruits, &c., to be kept Longer, Dryer, and Colder, with less Ice, than can be done with any other Refrigerator in use.

THE AIR TO VENTILATE

BARTLETT'S PATENT REFRIGERATOR

Is first passed through the Ice; after which, it enters the Provision Chambers, where it is exposed to two broad Sheets of Corrugated Zinc, made as cold as it is possible for ice and ice water to make them; consequently, whatever Moisture remains in the air, is Immediately Condensed upon these Frigerific Sheets, and passed off through the Drain Pipe. Therefore, the Ice and Water Box acts as a thorough Desiccator for the Provision Chambers. The Ice Water in the lower angle will keep the Provisions *ten degrees colder than the common atmosphere twenty-four hours after the ice is melted.*

A slow and constant Change of Atmosphere is secured, and NO *one article of food will impart flavor to another.*

There is no Drip, or moisture, deposited on the Sides, Top, Bottom, or Shelves.

A faucet is inserted, so that water, poured into the lower angle, can be drawn off for drinking or culinary purposes.

THE HIGHEST PREMIUMS were awarded this Refrigerator, by the American Institute, N. Y., Charleston, S. C., Lancaster, Pa., Baltimore, Md., and N. Y. State Fairs, 1860.

All Refrigerators will be sold for Cash and at Cash Prices.

BARTLETT & LESLEY, Manufacturers,

Wholesale and Retail Dealers in Refrigerators, Portable Heaters, Registers, Ventilators, Cast Iron Cemetery Urns, Vases, Rotating Ash-Shifters, Condensing Covers, Old Java Coffee Pots, and Hotel Coffee Boilers.

No. 426 BROADWAY, NEW YORK.

CAST-IRON VASES

FOR

HALLS, GARDENS, CONSERVATORIES, FOUNTAINS, PUBLIC GROUNDS, &c.

ALSO,

CEMETERY URNS,

From patterns equal to the finest Italian.

BARTLETT & LESLEY,

Manufacturers and Dealers in

Vases, Urns, Hitching-Posts,

BARTLETT'S

Patent Hot-Air Furnaces,

Portable Heaters, Rotating Ash-Shifters, Registers, Water-Coolers,

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BARTLETT'S

PATENT POLAR REFRIGERATORS,

No. 426 Broadway, N. Y.

SPLENDID LONDON FLORAL WORK,

"THE ILLUSTRATED BOUQUET."

GEO. C. THORBURN, Newark, N. J., begs respectfully to inform the Floricultural public, especially the ladies, that he is the authorized American Agent, but, at the same time, would be very glad if every lover of flowers would become co-agents, and circulate so charming a work as this valuable and unique publication—*unique* on account of its setting forth, in natural size, true colors, and highest style of art, such plants as are highly esteemed by amateurs and cultivators, and which, moreover, are *within reach*. The eye is not tempted by a splendid group of Azaleas, Begonias, Camellias, Roses, Rhododendrons or Geraniums, which are only in *Royal* collections, and consequently "Noli mi Tangere," or in the hands of exclusive florists at fabulous prices, but may be immediately imported, at moderate prices, from E. G. HENDERSON & SON, the eminent florists, of St. John's Wood, LONDON, who are also the projectors and proprietors of this work, and who forward their orders promptly through the American Express Company, by only first class steamers, *via* New York and Jersey City; *valuable*, because the most accurate and plain directions for the in-door or out-door culture of every plant set forth in the work is fully set down, free from embarrassing technicalities,—the magnificent new Rhododendrons, introduced to Europe by Sir W. J. Hooker and M. Booth, from Sikkim and Bhotan; the superb new Gladiolus of France and Belgium, which succeed so well in our climate; the brilliant and graceful Fuchsias of Mr. Banks, of Kent; the Zonale Geraniums and Spotted Pelargoniums of Culford Hall or Mons. Odier; the singularly variegated new Petunias or lovely Verbenas; the productions of the untiring industry and skill of modern florists are accurately delineated (with a selection of the best sorts stated on the page), in the most finished and accurate style, from original drawings *taken from growing plants*. The size of the work is imperial quarto, issued at four periods of the year. As the plates are intended to form bouquets of themselves, they will be frequently illustrated by groups of one variety of flower, as in Fuchsias, Begonias, Cyclamens, &c. The subjects represented in the work will be principally new plants, together with such other rare or valuable plants as may be considered worthy of being brought into further notice for cultivation. In short, such plants only will be offered as are of an ornamental character, either in *foliage* or *flower*, the former including the highly interesting and beautiful class of variegated-leaved plants so admirably adapted for picturesque effect throughout the year (especially during the winter months), and the latter as they appear in their respective seasons of bloom, blending their more varied and transient forms of beauty and gracefulness with the permanent and not less wonderful combinations of color in the former—and in all cases only such subjects admitted for illustration as are found to possess those features which are essential for decorative effects in the English gardens, and which, with a trifling variation, are equally adapted to ours.

Volume 1 is ready, price $10; also two numbers of volume 2, price $5.

The work is patronized in the highest circles of England and France, and is dedicated to the Princess Mary of Cambridge.

A specimen of the work on view at the Office of the "HORTICULTURIST," 25 Park Row, New York.

Subscriptions (in advance) may be forwarded to the advertiser, Box 498, Newark Post Office, who will promptly forward to any section of the Union or British Provinces.

April & May.*

ENCAUSTIC TILES.

MINTON'S

ENCAUSTIC TILES FOR FLOORS,

As laid by us in the Capitol at Washington, and in many

Churches, Banks, Hotels and Dwellings

In every part of the country.

PLUMBERS' MATERIALS,

ENGLISH AND AMERICAN

DRAIN PIPE,

GARNKIRK CHIMNEY TOPS, &c., &c.

FOR SALE BY

MILLER & COATES,

279 Pearl Street, New York.

April, May and June.

NANSEMOND SWEET POTATO PLANTS,

FOR NORTHERN PLANTING.

A superior article, packed to go safely long distances—400, $1; 1,000, $2; 5,000, $9; 10,000, $15—during May and June. Plants from us have produced fine crops in the North for several years—even as high as 44°. Circular of directions in culture, and statements from our Patrons sent for a stamp.

C. B. MURRAY,

(*Late O. S. Murray & Son,*)

Foster's Crossings, Warren County, Ohio.

April & May.

HYBRID GLADIOLUS.

Elegant HYBRID GLADIOLUS, including the beautiful G. BRINCKLEYENSIS, for description of which see March number.

FARFUGIUM GRANDE.

An elegant foliage Plant from Japan. Strong Plants, $1 each.

Also, a large stock of the VERBENAS, at $1 per dozen; together with HELIOTROPES, FUCHSIAS, GERANIUMS, LILIUMS, &c., at low prices.

Priced List on application.

W. H. SPOONER, Jr.

Jamaica Plains, Mass.

April & May.

MEEHAN'S DAHLIAS.

Catalogues on application. They obtained a special premium at the August meeting of the Pennsylvania Horticultural Society, and many of the chief premiums at the State Fair at Powelton in September.

PRICES.—1st Class, my own selection, $3 per doz; purchaser's selection, $4 per dozen.
2d Class, $2 per dozen; purchaser's selection $2 50 per dozen.

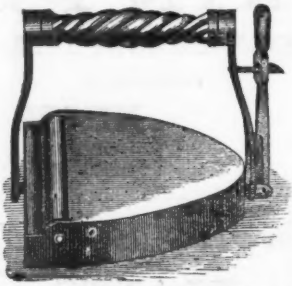
THOS. MEEHAN,
Germantown, Philadelphia.

April.

A NEW ARTICLE!!

F. A. CANNON'S

PATENT SMOOTHING AND POLISHING IRON.



LABOR SAVING.
SUPERIOR TO ANY
IRON
NOW IN USE.

This IRON has two faces. It revolves in the handle, and can be used on either side. The Roller side is intended to iron starched goods. The plain side to be used for unstarched goods.

By the aid of this Roller one-half the Labor is saved. By the aid of this Roller one-half the Time is saved. By the aid of this Roller a high satin finish is put on all linens. By the aid of this Roller all goods are re-finished like new. By the aid of this roller the Iron is moved with great ease. By the aid of this Roller the hand and wrist are not strained. By the aid of this Roller the work is converted into pleasure.

There is a great Saving of Labor, Time, and Goods, owing to the less friction required to produce the desired effect.

This Iron is solid, with an even thickness; consequently is heats more even, and holds heat longer than others.

Hereafter, Gentlemen can blame only themselves (for not buying this Iron) if their linen is not done up well.

DIRECTIONS.—Always place the smooth face to the stove to be heated (same as a common Iron,) then you preserve the high Polish, and *cleanliness* of the roller side for fine work.

Price Two Dollars Each.

☞ A liberal discount allowed to the trade. (One dozen packed in each Case.)

W. A. CORBIERE, Agent,
378 Broadway, corner of White street.

Apr.

White and Yellow Onion Sets.

WHITE AND YELLOW ONION SETS, a first rate sample, by the Bushel or Quart.

McILLVAIN & YOUNG,
Seedsmen, 9 John Street.

Apr.

Prize Dahlias.

It is with much pleasure the subscriber offers his

SUPERB COLLECTION OF DAHLIAS,

Probably the finest ever offered in this country, and the same for which the celebrated English Dahlia-grower, C. TURNER, obtained the leading prizes in London and other parts of England in 1859 and 1860, the roots having been obtained direct from him. He would name a few, viz.:

Amazon, Cherub, Colonel Windham, Deutche Wierde, Dr. Gully, Elizabeth, Harbinger, Lady Franklin, Lady Popham, Lord Bath, Lord Palmerston, Lollipop, Lord Fielding, Miss Pressley, Miss Watts, Mrs. Church, Mrs. Legge, Mrs. Turner, Peerless, Rachel Rawlings, Royal Scarlet, Sidney Herbert, Sir Jos. Paxton, Village Gem, Yellow Beauty.

PANCIES.—Amadis, Baron Alderson, Carnation, Cleopatra, Comet, Conqueror, Duchesse de Brabant, Empereur de Moroc, Glorie de Kain, Lady Paxton, La Defi, Marc Antony, Mrs. Hansard, Triomphe de Roubaix, Village Bride, &c., &c., &c.

Plants in small pots, in May, ready for planting out, $3 00 per dozen; 2 dozen for $5 00, packing included.

Descriptive Catalogues mailed on application.

JOHN SAUL,

Apr. & May. **Washington City, D. C.**

Flowering Plants for the Million.

30 FLOWERING PLANTS, AND FOUR PLANTS CHORLTON'S PROLIFIC STRAWBERRY, FOR TWO DOLLARS, PACKAGE INCLUDED.

On and after the first of April, I shall be prepared to send to any part of the country, on receipt of **TWO DOLLARS**, the following unrivalled collection of most beautiful and unexcelled flowering plants for the garden or greenhouse, and pledge my credit upon the perfect health and previously hardy treatment while under my care. The collection will consist of the most showy and best varieties of Fuchsias, Geraniums, Pentstemons, Cupheas, Lantanas, Verbenas, Calceolarias, Petunias, Perpetual Carnations, Salvias, Heliotropes, Chrysanthemums, and other plants, best adapted for Summer and Fall flowering.

I have also a large quantity of

CHORLTON'S PROLIFIC STRAWBERRY,

At One Dollar per Dozen, or Six Dollars per Hundred,

And will furnish, gratis, Four Plants of this fine variety to compensate for carriage, to all those who may favor me with an order for the above collection of Flowering Plants.

SPECIAL TERMS TO CLUBS.—Six collections sent to one address will receive one collection over for the getter up of the club.

Cash must invariably accompany the order.

EDWARD DECKER,

Apr. **Washington Nurseries, New Brighton, Staten Island, N. Y.**

Wm. R. Prince & Co.,

FLUSHING, N. Y.,

Will continue to reduce their prices for **Grapes**, in successive Wholesale Catalogues, every six months, and have just issued a new Wholesale Sheet.

NATIVE GRAPES AT REDUCED PRICES.

The following at 38 cents, and $4 00 per dozen :—Alexander, Early Amber, Elsinburgh, Hartford Prolific, Minor or Venango, Northern Muscadine.

The following at 50 cents, and $4 50 per dozen :—Albino, American Hamburgh, Baldwin, Blackstone, Brinckle, Canby's August or York Madeira, Cassidy, Concord, Diana, Emily, Franklin, Garrigues, Halifax, Herbemont, Kilvington, Kingsessing, Lenoir, Louisa, Marion Port, Mary Ann, Missouri, Norton's Virginia, Ohio or Jack, Ohio Prolific, Raabe, Rebecca, St. Catharine, Summer Black, Vine Arbor, Winslow.

The following 50 to 75 cents each, and $5 to $8 per dozen :—Bland, Canadian Chief, Childs' Superb, Clara, Ozark, 3 varieties, To Kalon, Union Village.

The following 75 cents each, and $8 per dozen :—Baltimore, Black King, Coleman's White, Early Hudson, Hensel's White, Holmes or Old Colony, Large Marion (true), Manhattan White, Monteith Cluster, Mustang, Napoleon, Pond's Seedling, Potter's Catawba, Purdy's Prolific, Ramsdel, Scuppernong, 3 varieties, Secord's White, Somerville, Troy Hamburgh, Wine Home.

The following 75 cents to $1 each :—Anna, Catawissa, Ive's Seedling, Long, Longworth's Catawba, Miles, Offer, White King or Golden Clinton, Pauline, Perkins, Saluda, Warren.

The following at $1 :—August Coral (true), Braddock, Carter's Favorite, Early Isabella, Empire, El Passo, Graham, Gridley, Hyde's Eliza (true), White Isabella, White Shonga.

The following $1 to $1 50 :—Allen's Hybrid, Cuyahoga, Delaware (often called Native,) Logan, Taylor or Bullitt, Ontario, Purple Catawba. Also in the spring, Maxatawny, Blue Favorite, and Wilmington.

Isabella and Catawba $1 50 per dozen, $4 to $5 per 100.

Clinton $2 per dozen, $8 to $10 per 100. Rebecca, $35 per 100.

Concord, Diana, and Hartford Prolific $25 to $30 per 100.

FOREIGN GRAPES—All the usual varieties 50 cents, and $4 per dozen.

Do. New Varieties, at reduced rates.

BLACKBERRIES—25,000 New Rochelle and Dorchester.

RASPBERRIES—40,000 Red Antwerp, Brinckle's Orange, Allen, and all others.

CURRANTS—50,000 Versailles, Caucase, Cherry, White Grape, White Province, Fertile d'Angers, &c.

RHUBARB—12,000 Linnæus, Victoria, &c.

☞ We ask special reference to our Descriptive Catalogue of Grapes, comprising over 400 Varieties.

Apr.

VERBENAS.

TO DEALERS AND THE TRADE.

40,000 VERBENAS, healthy young Plants, perfectly free from disease, embracing all the leading sorts, large proportions of Whites and Blues, and other scarce varieties.

Catalogue of Prices on application.

PETER HENDERSON,

Jersey City, N. J.,

April & May. **And 9 John Street, New York.**

NATIVE AND FOREIGN VINES.

Downing's Everbearing Mulberry and Magnolias.

The fourth edition of descriptive catalogue is now ready, and will be sent to all applicants who enclose for it two three-cent stamps. It contains an accurate description of all the valuable native varieties with which I am acquainted, that are in market, with full directions for planting, pruning and training, both for garden and vineyard, so clearly illustrated by engravings that no room is left for misapprehension. Full directions are also given for the preparation of the soil and for the general management of the vine.

All vines purchased of me, and treated according to directions which are simple, and the reason of them obvious to common sense, will be warranted to live and thrive satisfactorily, each according to its grade; and all who order by express, with clear, legible directions, will be assured of the reception of the plants in perfect order.

Having arrangements for propagation unequalled, I do not hesitate to claim unequalled excellence for my plants, and the **DELAWARE VINES**, grown from single eyes, both under glass and in open air, commend themselves to the attention of purchasers by their special vigorous health. But the fine large layers will still be preferred by those who desire to obtain the best possible plants.

Of **LARGE DIANA LAYERS** my stock is now limited, but of surpassing quality, and the vines will give fruit the first season.

Of **ANNA**, also, the stock is small, but the plants are of the best quality, consisting chiefly of large layers.

I am, this season, able to offer for the first time very large **HERBEMONT LAYERS**, ready for immediate bearing, and recommend it as very valuable for all gardens with a suitable exposure not more than one degree north of New York. Lovers of foreign grapes will find in it an unexceptionable fruit, specially suited to their taste.

The stock of **LARGE CONCORD LAYERS** is the best ever offered. I have also smaller plants of this variety at low prices, and particularly fitted for vineyard planting.

C. W. GRANT,

April. *IONA, near Peekskill, Westchester County, N. Y.*

Meehan's Substitute for Box Edging.

After a two years' test of its hardiness and fitness,

THOMAS MEEHAN

confidently recommends the

EVERGREEN SHRUBBY CANDYTUFT,

(Iberis Sempervirens,)

As the best substitute for Box edging ever introduced. It always remains at about six inches high, bears pruning well, and flowers freely, notwithstanding.

Plants in tin boxes free by mail after May 1st, $5 per dozen, or $1 each.

Germantown, Pa.

April.

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500 for $5.

STRAWBERRY PLANTS.

Wilson's Albany, Hooker, Peabody, Hovey, and Large Early Scarlet.

100 of each of the above leading and excellent varieties for Market and family use, strong and vigorous, true to name, securely packed for any distance for $5.

Send for a Catalogue. Other varieties substituted at Catalogue Prices.

EDWIN MARSHALL,

Poughkeepsie Nurseries, Poughkeepsie, N. Y.

April & May

Beautiful New Arbor Vitæ.

HOVEY & CO.

Have great pleasure in being enabled to offer to lovers of fine Coniferæ, a new and remarkable seedling variety of our well-known hardy and native Arbor Vitæ, the

THUJA HOVEYI,

which is, without doubt, the most beautiful of the whole group. It forms a moderate sized tree, pyramidal shaped, with very erect and compact branches, and leaves and growth as delicate as the Thuja aurea, holding its color, which is of a bright cheerful green, better than any other kind, not excepting the well-known Siberica, being of rich verdure in midwinter. It is the hardiest of all the Arbor Vitæ, having stood out the last four years, entirely unprotected, without injury to a single branch.

It is an entirely new, distinct, and beautiful tree, and will prove one of the greatest acquisitions. As single specimens on the lawn, or for forming groups in limited grounds, its moderate size will render it especially desirable.

All who have seen it pronounce it superior in beauty to the Aurea, while its undoubted hardiness must give it a claim over that variety, which is too tender for our Northern climate.

H. W. SARGENT, Esq., of Fishkill, the author of the new edition of Downing's Landscape Gardening, thus speaks of this seedling, after having examined the specimens:—

I hardly know what to say about your Arbor Vitæ, beyond my account of it in my Supplement to Downing's Landscape Gardening. I was much struck with it when in your grounds, thinking, when I first saw it at a distance, it was the T. aurea, and wondering how you got so fine a stock. It seemed to me to possess all the close compact habit of that most charming of Arbor Vitæs, with the additional merit of preserving its color better. I should suppose it the most valuable of its class, being very ornamental and striking when planted as single specimens.

H. W. SARGENT,

Wodenethe, Fishkill Landing, February, 1860.

J. J. SMITH, Esq., late Editor of the Horticulturist, thus speaks of it (vol. xii) after seeing the plants:—

Messrs. Hovey & Co. have a new Arbor Vitæ, somewhat like aurea, but which promises to be more valuable.

Having raised a moderate stock of this fine variety, all beautiful specimens, about 3 feet high, they will be offered for sale on the first of May next, provided ONE HUNDRED subscribers are obtained, or that number of plants ordered.

HOVEY & Co. also offer for sale, fine thrifty plants of the rare and beautiful

Thujopsis borealis,

Which has proved entirely hardy, having stood out at Wellesley and in our own grounds the past winter. It is without doubt one of the most exquisite trees, equalling in gracefulness the hemlock. It grows rapidly, and proves a fine tree. Plants, $1, 2, 3, and $5 each.

Cupressus Lawsoniana,

Another perfectly hardy Tree, from the mountains of Oregon, resembling in beauty the Thujopsis borealis, with similar foliage, but of a deeper green, and more dense in its branching habit. Plants, $3 each.

Catalogue of Ornamental Trees, Greenhouse Plants, Fruit &c., sent to Applicants on the receipt of a stamp.

Address

HOVEY & CO.,

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Evergreens, Shade Trees, Flowering Shrubs, Fruit Trees, Vines, Roots, &c.,

For

Lawns, Cemeteries, Parks, Avenues, Orchards, Gardens, &c.

☞ Stock for Nurserymen, Dealers, Landscape Gardeners, &c.

☞ Public Institutions furnished on the most liberal terms.

☞ Priced List and Descriptive Catalogue furnished on application.

DAVID J. GRISCOM,

Evergreen Nursery,

Woodbury, New Jersey.

2d Month, '60.
Feb. 3t.

GUANO.

We would call the attention of Guano Dealers, Planters and Farmers to the article which

Forty per cent. less than Peruvian Guano,

and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by WM. H. WEBB, of New York, from Jarvis' and Bakers' Islands, in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent and popular Agricultural Chemists, and found to contain (as will be seen by our circulars) a large per centage of

Bone Phosphate of Lime and Phosphoric Acid,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant by coming in contact with it, as is the case with some other fertilizers; retaining a great degree of moisture it causes the plant to grow in a healthy condition, and as experience has proved

Free of Insects.

For orders in any quantity (which will be promptly attended to) or pamphlets containing full particulars of analyses and tests of farmers,

APPLY TO **JOHN B. SARDY, Agent,**

Jan. 1860.—1 year. **No. 38 South St., corner of Wall St., New York City.**

BONE MANURE.

SAWINGS and GROUND BONE, for fertilizing purposes.

CRUSHED BONE, expressly for Graperies.

TURNINGS, for Case-Hardening and Feeding.

WARRANTED PURE.

FOR SALE BY **CHRISTIAN SCHWARTZ,**

Oct. 12mo. **Factory, East 53d St.—Office, 36 Vesey St.**

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LANDSCAPE GARDENERS AND RURAL ARCHITECTS,

520 WALNUT STREET, PHILADELPHIA.

Plans made for Country Seats, Cemeteries, &c., and work executed by contract if desired.

Sept. 12mo.

GEORGE E. WOODWARD,

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Country Seats, Public and Private Parks, Rural Cemeteries, Roads, &c., artistically laid out and superintended, and surveys, levels, grades, curves, and working maps and plans for improvements of every character. Topographical surveys and maps, and drawings of every description handsomely executed. Plans and levels for drainage of all kinds.

Feb. 6 mos. *

New and Rare Flower Seeds, &c.

JOHN SAUL,

NURSERYMAN, SEED-GROWER, AND IMPORTER,

396-7 Seventh Street, Washington City, D. C.,

Having saved with care a supply of Seed from his unrivalled collection of Perennial Phloxes, offers the same in papers at 25 cents each.

The collection of Annual and Perennial Flower Seeds, is most extensive, embracing all the novelties of real merit, among which he would name Abronia Umbellata, Alonsoa Warscewiczii, Acroclinium Roseum, Chrysanthemum Burridgianum, Delphinium Formosum, Eschscholtzia, Tennifolia, Linum Grandiflorum Coccineum, New Marbled China Pink, Œnothera Vistorta Veitchiana, Phlox Drummondii Oculata, Leapoldiana, Emperor Napoleon and Queen Victoria, Thunbergias, Veronica Syriaca, Whitlania Grandiflora; with rich collections of Astors, Balsams, Coxcombs, Carnations, Digitalis, Immortelle, German Stocks, Hollyhocks, Larkspurs, Wallflowers, Zinnias, &c. Many of the above, retailing at from 10 to 25 cts. per paper, will be included in the following collection. Each collection will also contain a paper of Perennial Phlox, pre-paid, by mail, (my selection).

25	Papers, choice new and rare varieties of Annual and Perennial Flower Seeds selected for any latitude in the Union,		$1 00
50	do. do. very fine,		2 00
100	do. do. the finest,		4 00
	Calceolaria, fine new spotted varieties, per paper,	25 cts.	
	Cineraria, new beautiful varieties, do.	25 cts.	
	Heartsease, or Pansy, from English prize flowers, per paper,	25 cts.	
	Hollyhock, Paul's superb varieties, per paper,	25 cts.	
	Primula Fimbriata, Alba and Rubra, each, per paper,	25 cts.	

Tree Seeds.—Austrian Pine, $3 per lb.; Pinasters. $1 per lb.; Scotch Pine, $1 50 per lb.; European Silver Fir, $1 per lb.; Norway Spruce, 75 cents per lb.; European Larch, $1 50 per lb.

Garden and Field Seeds in great variety, comprising all the staple articles of domestic growth, with every variety of value, from England, France and Germany, all guaranteed as to accuracy—warranted.

Prices as low as any respectable House in the Trade.

Feb., March and April.

WEATHERED & CHEREVOY,

PATENT

BOILERS

AND IMPROVED

HOT WATER APPARATUS,

FOR WARMING AND VENTILATING

Public Buildings, Private Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, &c.,

AND FOR HEATING WATER FOR BATHS,

NO. 117 PRINCE STREET, NEW YORK,

Between Green and Wooster Streets.

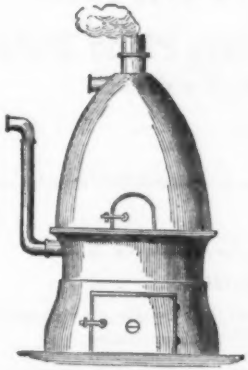


Fig. 1.

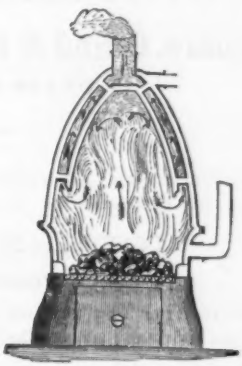


Fig. 2.

The Subscribers most respectfully call the attention of Gardeners, Florists, Nurserymen, and the public in general to their new and improved Boiler for the above purpose, for which letters patent have been granted. The cuts show the appearance of the Boiler. Fig. 1 is an outside view. Fig. 2 is a vertical section through the centre.

The arrows indicate the course of the flame and represent the heat passing between the two water chambers on its passage to the flue. There is no brick work whatever to the boiler, the stand which forms the ash pit being made of cast iron, with a ventilator in the door to regulate the draft to the fire. It will be seen from the above cuts that the boiler is two double casings, having two water chambers, connected together at the bottom and top by pipes; the heat radiating from the fire having nothing to obstruct it, strikes with great force against the whole interior surface of the boiler, thus preventing any accumulation of soot or dust. There being no outlet at the top of the inner dome for the gases to escape, they descend, to arise between the two water chambers on their passage to the flue, and are again brought in contact with the fire; by this means the fuel is economised, and a rapid circulation of the water is obtained with a very small amount of fuel.

The Boiler presents almost double the amount of heating surface to the fire, in proportion to its grates, over any other boiler yet made for the same purpose, and the form of the boiler is such, that the heat becomes absorbed and transmitted to the water previous to its escape to the flue, thus avoiding the great defects that all other boilers are subject to. The fire box is also large enough to receive a sufficiency of fuel to last twenty-four hours; this is an advantage which practical men accustomed to the use of Hot Water Apparatuses will fully appreciate. References will be given as regards its superiority over all other boilers, by applying to the undersigned.

Messrs. W. & C. having had several years' practical experience in the manufacture and construction of Hot Water Apparatuses, feel justified in stating that for effectiveness, durability, with economy of fuel combined, that these Boilers cannot be equaled by any other boiler now in use.

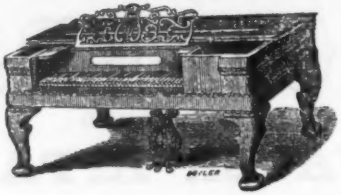
THOS. W. WEATHERED,
E. B. CHEREVOY.

WEATHERED & CHEREVOY,

June 12mo.

117 PRINCE STREET, New York.

STODART PIANO FORTES.



STODART & MORRIS,

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MANUFACTURERS OF THE CELEBRATED

STODART PIANO FORTES,

Square, Grand & Piccolo or Cottage Piano Fortes,

IN PLAIN AND ORNAMENTAL CASES.

In addition to the peculiar merits that have won for these instruments their enviable reputation, they comprise all the

MODERN IMPROVEMENTS

Possessing any real merits.

For PURITY OF TONE, DELICACY OF TOUCH, DURABILITY, and their capacity for enduring the ravages of SEVERE CLIMATES, the STODART PIANO FORTE stands unrivalled.

The Pianos of the above manufacture have stood the test for more than a quarter of a century.

For the superiority of these celebrated instruments, the manufacturers are at liberty to refer to over

FIFTEEN THOUSAND

families who have them in use, in nearly every part of the civilized world.

THE STODART PIANO FORTE is, in all respects, A PERFECT INSTRUMENT. The "action" of all their Pianos is *equally good*. The difference in price is in the *number of octaves*, and the *size* and *style* of the *case*. Our tariff of prices will be found in every way satisfactory.

Parties abroad favoring us with their orders can rely upon being as well served as if they were to make a selection in person.

All orders promptly executed.

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EVERGREENS.

JOHN W. ADAMS,

PORTLAND, MAINE.

Continues to forward ARBOR VITÆ, HEMLOCK, PINE, SPRUCE, FIR, LARCH, and SUGAR MAPLE, at very low prices. Assisted by men of experience, he will endeavor to fill all orders with promptness and fidelity. Catalogues now ready.

Feb. Mar. & Apr.

CATAWBA & ISABELLA GRAPE ROOTS.

150,000 one year old, selected, strong growth Grape Roots.

PRICES.

One-year old, Catawba Roots, $15 per 1000. | Cuttings of Catawbas, - - $2 per 1000.
Two " " $25 per 1000. | One-year old, Isabella Roots, $25 & $30 per 1000.

150 varieties of Native and Foreign Grapes. Also, Fruit and Ornamental Trees and Shrubs, on the best terms.

SANDUSKY CITY, OHIO. **J. P. MERRIAM, Agent.**

March, April & May. **51 McDonough Street.**

LANDSCAPE GARDENING.

MR. MUNN offers his services to Gentlemen in the laying out, and in the improvement of Ornamental Pleasure Grounds. Plans made to a scale so that they may be carried out by the Gardener; or if desired, planted by contract by the Advertiser.

References given to gentlemen in all the Middle and Northern States.

Address Box 3292, Post Office, New York, or care of

Mch, April & May. **C. M. SAXTON, 25 Park Row, New York.**

LAWTON BLACKBERRY PLANTS.

To obtain the original variety for garden or field culture; or circulars, with directions,

Address WILLIAM LAWTON, New Rochelle, N. Y.

Oct. tf.

WARREN & CARPENTER,

OF SAN FRANCISCO, ARE OUR AGENTS FOR CALIFORNIA.

167 CLAY STREET.

FARFUGIUM GRANDII.

ISAAC BUCHANAN would call special attention to this magnificent leaved Plant, from Japan, that will withstand our most vigorous winters without protection, and make a very desirable object in the flower border during the summer months. The leaves are large, deep green, covered with bright yellow spots and blotches, and will not fade from the effects of a bright sun. FINE STRONG-ROOTED PLANTS, at $1 each.

Also the very desirable plants TRITOMA UVARIA, do. BURCHELII, at 75 cents each.

ISAAC BUCHANAN, Florist,

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WANTED, the back Numbers of Horticulturist, from July, 1846, to January, 1854.

Address C. M. SAXTON, PUBLISHER.

QUEEN'S SEEDSMEN.

PETER LAWSON & SON,

EDINBURGH, 1 George IV Bridge;

LONDON, 27 Great George Street, Westminster, S. W.

On account of the numerous applications which have been made to Peter Lawson & Son to send their List of Seeds and Nursery Produce to the United States and Canada, they beg to inform the Trade in America that they are prepared to furnish them with

PRICE-LISTS,

and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by CASH, satisfactory references in England, or may be forwarded through

CRAIG & NICAL, No. 6 Bowling Green, New York.

Mch. & April.

AMERICAN GUNAO.

TO FARMERS AND DEALERS IN GUANO.

This Guano from Jarvis Island, in the Pacific Ocean, containing 80 per cent of Phosphates, and Sulphates of Lime, and the most valuable fertilizer known, is offered for sale in large or small quantities at two-thirds the price of Peruvian. For full information and particulars, address

C. S. MARSHALL,

President of the American Guano Company,

March 12 times. **66 William Street, New York.**

NEW VERBENAS.

The following Verbenas, Seedlings, and Importations of 1859, have all been proved in our grounds during last season, and were pronounced by hundreds to be superior to anything of the class yet introduced.

Brilliant—Clear Rose, with rich scarlet eye, large and fine form.
Crimson Gem—In every respect similar to "Rosy Gem," except in color, which is of the richest crimson.
Ethiopian—Deep purplish blue, with clear white eye, large, fine form, fragrant.
Midnight—Color dark purplish maroon, similar to "Madam Abdt," but much darker, with larger truss.
Juno—Clear waxy white, with cherry eye, very distinct and fine.
Mrs. Field—Color of the richest scarlet crimson, with pale rose centre, truss of the largest size—was the favorite of over 100 varieties in our collection last season.
Compte de Morella—Brilliant crimson, yellow eye, very striking and distinct.

Price of the above 50 cents each, or the set of Eight for $3.

Our general collection comprises over 100 varieties, of which we have upwards of 40,000 fine healthy plants grown by our peculiar method of extra small pots, which in this, as well as all our other bedding plants, is a great convenience to the purchaser in lightness of carriage. Price $1 per dozen, $6 per 100.

General Catalogue on application.

PETER HENDERSON,

Jersey City, N. J.

Agents, McILLVAIN & YOUNG, 9 *John Street, N. Y.*

Mch. & Apr.

HOWARD DANIELS,

Architect and Landscape Gardener,

tf. **237 BROADWAY, NEW YORK.**

NEW AND CHOICE PLANTS.

Bedding Geranium, Pride of the Parlor.

The subscriber has the entire stock of this superior seedling, raised by Prof. C. G. Page, of Washington, D. C. Its fine habits, immense truss of perfect-shaped flowers of great substance, and vermilion scarlet color, have given it rank as the best Zonale yet grown. Its perfect dome of compact richly-marked foliage, and noble balls of flowers, well above, make it very conspicuous. Price, 75 cents; 4 sent for $3.

Variegated Daisy.

This beautiful Seedling has a fine, large, bright rose flower, with remarkably beautiful variegated foliage, much resembling the Acuba Japonica. Leaves large, glossy, and of great substance. A decided acquisition. Price, 50 cents.

Tritoma Uvaria.

A most desirable plant for the open border, or for forcing. Its curious foliage is very ornamental, and its whorled-spike of flowers rising on a three-feet stem is very conspicuous. "A most remarkable and very showy plant, . . . every way desirable, and a great acquisition." Report of Flower Committee of Massachusetts Horticultural Society, in which is a full description. Price, 50 cents.

Verbena Cambridge Belle,

Which received the Silver Medal of the Massachusetts Horticultural Society as the best seedling for 1859; also, Columbia and Rosette, two other seedlings raised by Mr. James Walsh. Price for the three, 50 cents. Also, every good Verbena known, at $1 per dozen.

Hollyhocks.

Superb new kinds. Twelve best named varieties at $5. Twenty-four distinct kinds, $8.

Fuchsias.

All the best new and standard varieties.

Show Geraniums.

The stock is not surpassed in quantity or quality by any in the country. Good Standard kinds at $3. Best New at $5 per dozen.

Gloxinias.

This plant has been so much changed by hybridizing that no other now exceeds it, either for winter forcing or for summer show. The new kinds are truly magnificent. As exhibited last season, they excited the admiration of all. Price $5 per dozen.

Every variety of Bedding Plants at $1 to $2 per dozen.

Also, Fruit Trees of all kinds; Pears of extra size and superior form; New Grapes, including Allen's Hybrid, Roger's Seedling, Delaware, Rebecca, Diana, Concord, &c.

Ornamental Trees and Shrubs of every description.

New European and American Roses of 1859.

Catalogues are now ready.

Address, **W. C. STRONG,**

Mch. & Apr. **Nonantum Hill, Brighton, Mass.**

SAELTZER & VALTZ,

ARCHITECTS

Of New York Academy of Music, Astor Library, &c.

Success of the New American style for Cottages and Villas, being now adopted by all gentlemen who have seen our examples; no other style as beautiful or so economical in construction; all the comforts required for any latitude are combined; and we call upon all, no matter how little their house is to cost, to examine our designs before choosing any other foreign style.

For Terms, and an example, enclose stamp and send for circular.

Office—Bible House, Astor Place, New York.

March & April.

ALBANY TILE WORKS,

Corner of Clinton Avenue and Knox Street, Albany, N. Y.

THE subscribers being the most extensive manufacturers of DRAINING TILE in the United States, have on hand, in large or small quantities, for Land Draining, Round, Sole, and Horse-Shoe Tile, warranted superior to any made in this country; hard-burned and over one foot in length.

ROUND TILE.

Inches diam.	Per thousand feet.
1¼	$ 8 00
2¼	12 00
3½	40 00

SOLE TILE.

Inches rise.	Per thousand feet.
2	$10 00
3	16 00
4	30 00
5	50 00
6	80 00
9	200 00

HORSE-SHOE TILE.

2½	inches rise,	....	$10 00	per 1000	feet.
3½	" "	....	15 00	"	"
4½	" "	....	18 00	"	"
5½	" "	....	35 00	"	"
6½	" "	....	55 00	"	"
7½	" "	....	75 00	"	"

☞ Orders solicited. Terms, CASH.

Oct. 12t. **C. & W. McCAMMON, Albany, N. Y.**

200,000 PLUM-TREES

Grown on a vigorous and Hardy Plum Stock, of which we have the monopoly.

	Per 100	Per 1000
80,000 two year old, 4 to 6 feet, . .	$25 00	$225 00
100,000 one year old, 3 to 4 feet, . .	20 00	190 00
20,000 Dwarf, 3 years old, . . .	30 00	250 00

ALSO,

APPLES, PEARS, CHERRIES, GRAPES, RASPBERRIES, STRAWBERRIES, ORNAMENTAL EVERGREENS, and stocks for Nurserymen.

☞ Catalogues ent gratis.

C. REAGLES & SON,

Feb. March & April. **Schenectady, N. Y.**

THE NEWARK NURSERY,

Having disposed of some 200 acres of their grounds to a Company, for a permanent "**Fair Ground,**" are obliged to remove the Trees from those grounds during the coming Fall and Spring.

An immense number of

Fruit and Ornamental Trees, Shrubs, Vines, etc., etc.,

will be sold at very low rates. A large number of the Evergreens and other Ornamental Trees, are of extra size, and remarkably well shaped, and of thrifty growth.

Orders addressed to GUSTIN & PITMAN, NURSERYMEN, NEWARK, NEW JERSEY, or to Messrs. J. M. THORBURN & Co., 15 JOHN STREET, NEW YORK, will be promptly attended to.

ALLEN RASPBERRY,

Wilson's Albany Strawberry,

Lawton Blackberry, &c.

Another year's trial has proved the **ALLEN RASPBERRY** not only *perfectly hardy*, but more productive than any other Raspberry we raise. They have given perfect satisfaction, so far as we have been able to learn, to growers in New England, New Jersey, and other localities where the Hudson River Antwerp has proved worthless. The fruit is large, firm, and of superior quality.

Price, $1 per dozen ; $5 per hundred ; $40 per thousand plants.

ALSO,

HUDSON RIVER ANTWERP, $2 per 100, $15 per 1000.
FASTOLF, 75 cents per dozen; $4 per 100.
LAWTON BLACKBERRY, $1 per dozen, $3.50 per 50. $6 per 100.
WILSON ALBANY STRAWBERRY—*Extra Strong Plants*—$10 per 1000, $70 per 10,000.
LARGE EARLY SCARLET, $1 per 100, $8 per 10000
MOYAMENSING, (Late) $1 per 100, $8 per 1000.
LONGWORTH'S PROLIFIC. $1.50 per 100, $10 per 1000.
RIVERS' ELIZA, $1.50 per 100, $10 per 1000.
RED DUTCH CURRANTS, good one year old plants, $4 per 100, $30 per 1000.
Do., 2 and 3 year old plants, $6 per 100, $40 per $1000.
BLACK NAPLES, Do., $1 per dozen, $8 per 1000.
Also, strong 1 year old **ASPARAGUS ROOTS**, $10 per 1000.

H. & J. CARPENTER,

Mch. & Apr. **Poughkeepsie, N. Y.**

Five Splendid Strawberries.

HOOKER,—Very productive ; large, beautiful, and of UNEQUALLED QUALITY.
Wilson's Albany,—Exceedingly productive ; FINE FOR MARKET.
Triomphe de Grand,—IMMENSE SIZE; splendid appearance, and *high flavor*.
Pyramidal Chilian,—Very handsome ; productive, hardy, and *good flavor*.
Large Early Scarlet,—THE EARLIEST ; productive, and *excellent*.

As it is impossible to secure all the excellencies of this most popular fruit *in one variety*, we offer the above as comprising, in five sorts, the various points desirable.

"We again confidently RECOMMEND the HOOKER as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety."

☞ All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

PRICE,—(Securely packed to be forwarded by express :)

Per 100 plants of any of the above varieties	$2 00	Per 500 plants, 100 of each variety	$7 50
" 100 plants, 20 of each variety	3 00	" 1000 plants of the Hooker	10 00

H. E. HOOKER & CO.,

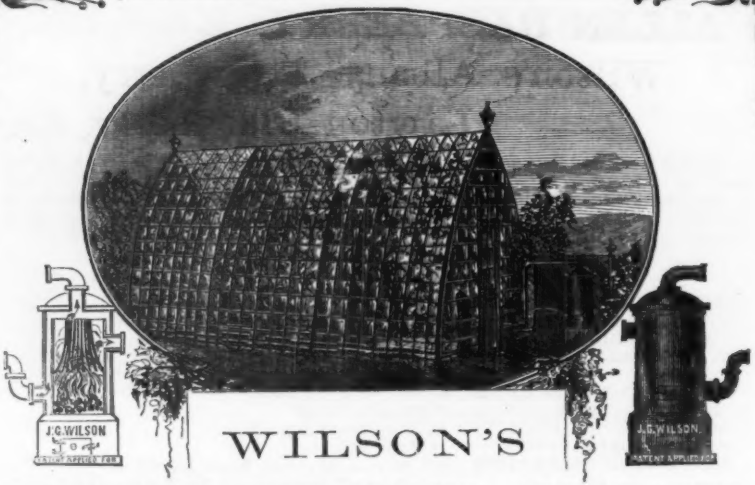
Commercial Nurseries, Rochester, N. Y.

The following are some of the distinguishing points of the "*Hooker*," which originated in our Nurseries:

The plant is very vigorous and hardy;
It is extremely productive;
It is of the largest size ;
It is very dark-colored ; flesh, also, deeply colored ;
It is the only *large* and *productive* Strawberry, which has also *high flavor* and quality ; it is for the combination of these points that we claim its superiority ;
It is excellent for preserving—*retaining* its high, rich color when preserved ;
It has perfect flowers—and consequently requires no other variety planted near to fertilize it.

Our Nurseries were established in 1830 ; and rank now among the most extensive in the United States—occupying two hundred acres. They are planted exclusively with Nursery productions, embracing every variety of Fruit and Ornamental Trees, Shrubs, Small Fruits, Roses, &c., &c.

Mch. & Apr.



WILSON'S

IMPROVED HOT WATER APPARATUS,

FOR WARMING

CONSERVATORIES, GRAPERIES, FORCING PITS, PUBLIC BUILDINGS, BATHS, DWELLINGS.

This Boiler is a new combination of the tubular and cylinder principle, is made of heavy wrought and cast-iron, is perfectly safe against cracking and breaking, and is the most **EFFICIENT, ECONOMICAL, AND SIMPLE HEATER** yet offered to the public.

Graperies and Greenhouses Furnished and Fitted up at the shortest notice.

WILSON & CO., 182 Centre St., corner of Hester St., near Canal, New York.

☞ **PLUMBING IN ALL ITS BRANCHES.**

[*From the Architects' and Mechanics' Journal.*]

Of all plans hitherto adopted for warming and ventilating buildings, those in which water is employed to convey the heat from the fire to the air, are, in principle and in effect, superior and to be preferred. That soft, even temperature of the air, with all its moisture and vitality retained, which is so essential to health and buoyancy of spirit, and absolutely necessary for the proper growth of p'ants, in greenhouses, can be obtained in no other way so perfectly, and at so small an expense.

Quite a number of styles of heaters have been proposed and used for the purpose. One of the latest, and probably the best of which, is represented by the annexed figure. The large drawing in the centre represents it as applied to a grapery or greenhouse. Fig. 1 is a vertical section of the heater, and Fig. 2 a perspective view. The heater consists of two cylinders, one within the other, the inner one forming the fire-chamber, while the space between the two is filled with water, the whole being placed on a cast-iron base, forming the ash-pit. From one side of the fire-chamber an exit pipe is affixed for the escape of the gases of combustion. The water-jacket has two openings—one at or near the bottom, and one at the top. Inside the fire-chamber are a series of bent tubes, terminating at one end in the water-jacket at the sides just above the fire, and at the other end, in the top of the fire-chamber. There are twenty of these tubes arranged in two circles, thus securing a large amount of heating surface in a small compass. The water enters at the lower opening, as shown by the arrows, passes through the tubes, is heated, and passes out at the upper opening into the room to be warmed, whence it returns, after parting with its caloric, to the heater again; thus keeping up a constant circulation, the rapidity of which is greatly enhanced by the arrangement of the heating tubes. This boiler may be made entirely of cast-iron, packed at the joints, and held together by bolts in such a manner that should it become necessary it can be taken in pieces and put together again in an hour's time, thereby giving great facilities for repair.

We understand that one of these heaters is now being erected in the large grapery of Mr. ARMSTRONG, at Bergen, N. J., calculated to supply seven hundred feet of four inch pipe. Measures have been taken to secure a patent for the improvement.

Jan., 1 year.

TREES AND PLANTS.

The Proprietors would respectfully invite the attention of Planters to their well assorted stock of Fruit and Ornamental Trees, comprising

Apples—Standard

Do. —Dwarf, pruned low, and nicely branched.

Pears—Standard.

Do. —Dwarf.

Peaches, Plums, Cherries, Standard and Dwarf, Apricots, Nectarines, Quinces, &c.

SMALL FRUITS—Houghton's Seedling Gooseberries, in large o small quantities. **Currants,** several varieties, by the dezen, hundred, or thousand. **Strawberries**—Albany, Hooker, Peabody, Prolific Hautbois, Hovey's, Early Scarlet, at $1 per 100, $4.50 per 500, $8 per 1000, with 30 other sorts, by the dozen, at low prices. **Lawton Blackberries**—$8 per 100, $60 per 1000.

Downing's Everbearing Mulberry—strong plants of this luscious new fruit (true), price $2 each. **Grapes**—an extensive collection, comprising about 70 kinds, and including the best, both Native and Foreign.

Ornamental Trees—several species of Maples, Lindens, Ashes, Elms, Larches, Locusts, Beeches, Willows, Pawlonias, Magnolias, &c., &c. Also, all the best *Weeping, Double-Flowering*, Variegated and Cut-leaved Trees for Lawns, Cemeteries, Parks, &c., &c. With a great variety of Evergreens, including a large assortment of the rarer kinds.

Our list of Shrubbery and Roses, having been greatly enriched by annual importations from Europe, we can now confidently recommend them both to dealers and the retail trade.

A descriptive Catalogue sent free to all applicants. Freight paid to Philadelphia.

HOOPES & BRO., Proprietors,

Cherry Hill Nurseries, West Chester, Pa.

Feb., Mch. & April.

WM. REID

Offers for sale this Spring, at his

NURSERIES,

ELIZABETHTOWN, N. J.,

A general assortment of Fruit, Ornamental Trees, Shrubs, &c. The collection of Fruits includes nearly all the new varieties of late introduction, as well as those in general cultivation.

The collection of Ornamental Trees and Shrubs is also extensive, and comprises nearly all the hardy Trees and Shrubs suitable for Park and Lawn planting; and when large quantities are ordered, the prices will be greatly reduced.

Also, a large stock of

NORWAY SPRUCE, SCOTCH PINE, &c.,

of all sizes suitable for planting Belts, Parks, Screens, and Hedges. Having a larger stock of these than I require, will, when a quantity is taken, sell them fifty per cent. less than the usual price.

For a list of New and Rare Evergreens, &c, see general Catalogue, which will be forwarded on application.

Trees securely packed and forwarded to all parts of the United States.

Orders by mail, or left at the Nursery, will receive prompt attention.

Mch. & Apr.

SPLENDID VERBENAS for 1860.

DEXTER SNOW, VERBENA GROWER, CHICOPEE, MASS.,

Would respectfully solicit the attention of those desirous of securing a choice lot of Verbenas the coming season, to his unrivalled collection of 300 named varieties, including all the recent ones of note, together with entire new ones now offered for the first time. Among the latter Neptune and Snow's Purple, are especially fine; the former the best rich dark maroon yet out, the latter a very fine purple, superior in every respect. Among the best of the recent ones are,—Prima Donna, the largest Verbena in cultivation, and a good bedder; Bedding Purple, one of the very best for bedding purposes; Topsy, a rich maroon crimson, bright, showy eye, ex; Bacchus, very dark maroon; Etonian, good purple, light eye; Capt. E. Pattinger, rich damask scarlet, beautiful flower; Mrs. Turner, rosy pink, darker centre, very neat and pretty; Sir J. Outram, good purple, light eye; Leviathan, blue purple, very large white eye; Beauty of Castile, a rich violet rose or amaranth, one of the very best; Mrs. J. M. MacKay, bright, rosy crimson, white eye, very large and showy, and should be in every collection; Prince Frederick William; Vesta, white, striped with lavender, pink eye; Cynthia, rich ruby crimson, large flower; Reine de Amazone, pure white, dense violet eye; Emperor, bright crimson, violet centre, large and very fine; Mulberry superb, Fall Mulberry, bright lemon eye; Phœbus, Eclipse, Mrs. Cyrus W. Field, Pactole, Bicolor, Gen. Havelock, Miss Hanner, Euterpe, Julia de Courcelle, Jean Bard, Madame Chaure, Indigo, Madame Mezeries, Lady Seymour, Mrs. Ferguson, Cherub, Penthee, Madame Matras, Fire Ball, &c.

Prices per package, as follows:

Package No. 1, 12 distinct first-class varieties - - - - $1 00
Package No. 2, 24 " " " - - - - 2 00
Package No. 3, 60 varieties, including all the new seedlings, and nearly all of the recent ones named above, - - - 5 00

If ordered previous to April 1st, (*Cash* accompanying the order,) a package of choice mixed Verbena Seed will be included with each of the smaller packages,—and with each No. 3 package, two packages of Verbena Seed. The above prices are for strong, established plants, well packed, and delivered at the Express Office, without extra charge for either Box, Packing or Cartage.

Plants can also be forwarded in good condition, hundreds of miles by mail, if ordered in March, or at farthest, April 15th. Prices for mailed packages, as follows:

Package No. 1, by mail, post paid, - - - - - $1 12
Package No. 2, " " " - - - - - 2 25
Package No. 3, " " " - - - - - 5 50

The plants thus forwarded are strong and well rooted, each correctly labelled, and put up in such manner as not to harm a leaf. If procured in March, and repotted into pint or quart pots, and placed in a hotbed or greenhouse, they will make extra large plants for bedding out in May; they should then be planted out in new ground, or where they have not been grown before, as the Verbena does far better with a change of soil every other year.

The subscriber strictly adheres to the *exclusive culture* of the Verbena, and is the only special grower in the world. Descriptive Catalogues forwarded on application. All orders enclosing *Cash* promptly and faithfully attended to.

Address, **DEXTER SNOW, Chicopee, Mass.**

Jan., Feb., March and April.

TO FARMERS AND GARDENERS.

THE SUBSCRIBERS OFFER FOR SALE,

60,000 Barrels of Poudrette,

Made by the Lodi Manufacturing Co., in lots to suit purchasers.

This article is in the twentieth year of its introduction into this country, and has outlived fertilizers of every description, for the following reasons:

1st. It is made from the night soil of the City of New York, by the Lodi Manufacturing Company, who have a capital of over $100,000 invested in the business, which is at risk should they make a bad article.

2d. For corn and vegetables it is the cheapest, neatest, and handiest manure in the world; it can be placed in direct contact with the seed, forces and ripens vegetation two weeks earlier, prevents the cut worm, DOUBLES the crop, and is WITHOUT DISAGREEABLE ODOR. Three Dollars' worth, or two barrels, is all sufficient to manure an acre of corn in the hill.

PRICE—1 bbl. $2; 2 bbls. $3 50; 5 bbls. $8; and over 6 bbls. $1 50 per bbl., delivered free of cartage, to vessel or railroad in New York city.

A pamphlet containing every information, and certificates from farmers all over the United States, who have used it from two to seventeen years, will be sent free to any one applying for the same.

GRIFFING BROTHERS & Co.,

Meh, April & May. **60 Cortlandt Street, New York.**

1860. GARDEN SEEDS. 1860.

New England Agricultural Warehouse and Seed Store.

The subscribers have the most extensive collection of *Choice Garden Seeds* of their own growth or importation, which they offer with full confidence to those who want *Seeds* that are true to their names, and of a *pure* and *reliable quality*.

We try Seeds of every variety in our *Hothouses at Brighton* before offering them for sale, and allow none to go out from our store until we are fully assured that they will germinate freely.

Below is a list of a few of the principal varieties, but for full particulars and description, see catalogues, which may be had gratis upon application.

Daniel O'Rourke,	**Cedo Nulli,**	**Early Washington,**
Prince Albert,	**Kent's Early,**	**Earliest Dwarf** and every
Hill's Early,	**Early Warwick,**	variety of **Early Pea.**
Champion of England,	**Fairbeard's Defiance,**	**Marrowfat,**
Dwarf Blue Imperial,	and **Nonpareil,**	**Large Late do.,**
Dwarf Blue Mammoth,	**Missouri Dwarf,**	**Black Eyed do.,**

and all **other varieties** that are worth cultivating.

Adams' Early,	**Early Winningstadt,**	**Red Dutch,**
Shillings' Early,	(very superior)	**Sugar Loaf,**
Early York,	**Early** and **Late Drumhead,**	and many other kinds
Early Premium Dutch,	**Savoy,**	of **Cabbages.**

Early Curled Silesia, (extra curled,) **Royal Cape, Cabbage Imperial, Tennisball**, and all the **varieties** of the **Coss Lettuces**.

Melon, Onion, Parsnip, Pepper, Pumpkin, Radish, Rhubarb, Squash, Tomato, and **Turnip Seeds** of every kind known.

FLOWER SEEDS of all kinds, comprising more than *six hundred varieties*, including *splendid assortments* of ASTERS, BALSAMS, STOCKS, LARKSPURS, HOLLYHOCKS, IPOMEAS, etc., etc.

JOSEPH BRECK & SON,

March & April. **51 & 52 NORTH MARKET ST., Boston.**

NOVELTIES FOR 1860.

The subscriber would call attention to the following new and choice plants and seeds, now for the first time sent out:

NEW DOUBLE-FLOWERED PETUNIAS.

These are selected from a large number of seedlings of my own raising, and have been pronounced by all judges who have seen them, to be superior to any yet received from Europe. They took *first-class prizes* last fall at the exhibitions at Brooklyn, New York, and Elizabeth, and are the Petuniasalluded to by the editor of the Horticulturist in the January number. They partake of two characters: those with large flowers resemble the double Hollyhock, and measure three or four inches in diameter; those with medium-sized flowers are much in the style of a Carnation Pink. They are all of compact habit, free bloomers, good for bedding purposes, and most of them fragrant.

1 **Isaac Buchanan**, (medium,) carmine rose, distinctly veined with deep crimson; very distinct.

2 **Van Voorstii**, (large,) creamy white, very large, fragrant, and double.

3 **Atropurpurea**, (medium) deep purple, profuse bloomer.

4 **Paulmierii**, (large,) blush white, tinged with purple, and very sweet; does wellin pots.

5 **Dr. Knight**, (medium,) beautiful rosy blush, well up in the centre; fine habit, and fragrant.

6 **Mr. Baker**, (medium,) pale lilac, deeply veined in the centre.

7 **Cora L. Barton**, (very large,) flesh-color, tinted with deep purple, and extremely fragrant.

8 **Rosalie**, rosy purple, compact and double.

NEW SINGLE-FLOWERED PETUNIAS (SEEDLINGS OF 1859.)

1 **Mrs. Buchanan**, crimson, beautifully striped with pure white; fine-shaped flower.

2 **Chinchilla**, dark maroon centre, changing to crimson, varied in the form of a star.

3 **Flora Temple**, deep blush purple, striped and blotched with pure white.

4 **Princess**, light rose, striped and mottled with white.

5 **Attraction**, purple ground. finely striped; good shape.

6 **Crimson Perfection**, handsome large crimson, dark eye; good shaped flower.

Strong plants of the whole set of double and single, $6, including packing, delivered at steamboat or express. The plants can also be sent by mail to a great distance at an additional cost of fifty cents postage for the set. Plants thus received should be carefully repotted, well watered, and placed in a frame or greenhouse for a few days to recover, before planting in the open ground.

Plants of the above Petunias 50 cents each, or Six Dollars for the set of 14.

Also for sale, all the best imported Petunias, and a fine collection of Bedding plants.

RARE AND CHOICE SEEDS.

Gladiolus seed, from 65 varieties of Gandavensis, 25 cents for 40 seeds.

Petunia seed, from the finest striped varieties, 25 cents per paper.

Madras Radish, very choice; fine solid pods for pickling or salad; the pods may also be eaten as the common Radish; 25 cents for 40 seeds.

A selection of Balsams, Asters, Everlasting, Phlox Drummondii, Verbenas, Convolvulus minor, Amaranthus tricolor, Thunbergia, &c., embracing 20 varieties, *all extra*, the growth of 1859, and warranted to grow; sent free by mail for $1.

All orders inclosing cash will be promptly attended to.

Address, **ISAAC BUCHANAN,**

Feb., Mch. & Apr. **No. 9 West Seventeenth Street, New York.**

SMALL FRUITS.

Having for many years paid special attention to the cultivation of small fruits, we are now prepared to furnish, in small or large quantities, the following valuable varieties:

STRAWBERRIES.

Over one hundred varieties, embracing nearly all the native and foreign kinds of any repute. The most universally popular of these is undoubtedly the

WILSON'S ALBANY SEEDLING.

of which we have on hand the largest stock in existence, which we offer at 25 cents per dozen, $1 per 100, $6 per 1000, and $50 per 10,000.

Other varieties proportionately low, and great inducements offered to those wanting large quantities.

RASPBERRIES.

Brinckle's Orange $1.50 per dozen, $7 per 100; Fastolf, Rivers' Large Fruited Monthly, Knevett's Giant, Red and Yellow Antwerp, $1 per dozen, $5 per 100.

BLACKBERRIES.

New Rochelle, or Lawton, $1 per dozen, $5 per 100, and $40 per 1000.
Dorchester and Newman's Thornless, $3 per 100, $25 per 1000.
Wholesale purchasers and dealers allowed a liberal discount.

PLANTS BY MAIL.

For $1 we will send to any Post-Office in the country, except Oregon and California, post-paid, and carefully put up in cotton and oiled silk so as to carry safely, 40 Wilson's Albany Seedling Strawberry Plants; or the same number of plants of any other variety in our catalogue offered at 25 cents per dozen; those at 50 cents per dozen half the number. For $1 we will also send Six New Rochelle Blackberry Plants.

Printed instructions for cultivation will accompany plants.

Catalogues sent on application, enclosing stamp.

J. KNOX,

Mch. & Apr. **Box 478, Pittsburg, Pa.**

NEALLEY BROTHERS & BOCK'S NURSERIES,

BURLINGTON, IOWA.

The proprietors beg leave to call the attention of Nurserymen, Dealers and Planters generally, to their large and excellent stock, which will be sold at prices to suit the times.

STANDARD FRUIT-TREES, for Orchards, embracing all the best varieties of Apples, Pears, Cherries, Peaches, Plums, Apricots, Nectarines, &c.

DWARF TREES, for Gardens, embracing all the most popular sorts of Apples, Pears, Cherries, Peaches, Plums, Apricots, Nectarines and Quinces.

GRAPE-VINES, embracing all the most popular hardy varieties, new and old.

SMALL FRUITS, embracing all the most popular varieties of Blackberries, Gooseberries, Currants, Raspberries, Strawberries, &c.

MISCELLANEOUS FRUITS, embracing Chestnuts, Mulberries, Filberts, Berberries, &c.

RHUBARB OR PIE-PLANT, embracing all the largest and finest varieties, as Downing's Colossal, Victoria, Linnæus, Cahoon, &c.

ORNAMENTAL DEPARTMENT,

Embracing all the choice hardy varieties of Evergreens, Shade and Ornamental Trees, Flowering Shrubs, Vines and Climbers, Roses, Peonies, Dahlias, Phloxes, Fuchsias, and all other popular or desirable Greenhouse and Hardy Flowering Plants worthy of Cultivation in the West.

☞ For further information and prices, see the following Catalogues, which will be sent gratis to all who apply for them.

First, Our general Descriptive Catalogue of Fruit and Ornamental Trees, Shrubs, Vines, Roses, Greenhouse and Hardy Flowering Plants.

Second, Our Wholesale Catalogue for Nurserymen and Dealers, or others who purchase largely.

NEALLEY BROTHERS & BOCK,

Mch. & Apr. **Burlington, Iowa.**

NEW HOT WATER FURNACE.

LEEDS' PATENT, FOR WARMING AND VENTILATING

PUBLIC

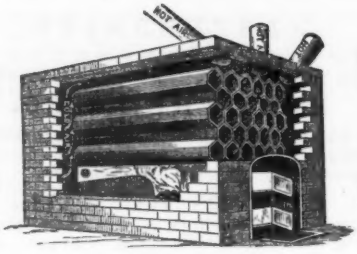
BUILDINGS,

DWELLINGS,

Stores, Hotels

AND

FACTORIES.



GREEN-

HOUSES,

GRAPERIES,

Forcing Pits,

ETC., ETC.

After a thorough test of our Hot Water Furnace, in different parts of the Union, the past three winters, we confidently offer it to the public as possessing the following advantages (among many) over Hot Air Furnaces, long circuitous coils of Steam Pipes, or Radiators:

First—This HOT WATER FURNACE warms a large volume of *Fresh Air* from the outside, by passing it over a radiating surface, and through Hexagonal Pipes, entirely surrounded by *hot water*, not exceeding a temperature of 212 degrees; thus introducing into the apartments, an atmosphere, with all its *moisture* and *vitality*, *soft*, *agreeable*, and *invigorating*.

Second—It affords the only means of correct and complete ventilation, which consists in displacing the vitiated or foul air, by the introduction of a large quantity of fresh air, warmed to a proper temperature, and passing through each apartment at short intervals.

Third—It furnishes an atmosphere *entirely free from dust and noxious gases*, and has operated a a preventive and cure to diseases of the throat, lungs and chests, as we have abundant testi mony to show.

Fouth—It is *economical* and *efficient*, consuming less fuel to heat properly the same number of cubic feet of air, in a given time. This is accomplished by the compact form of the chest, causing a *shot and apid circulation* of the water which brings it often in contact with the fire surface, and presenting to the air, by the hexagonal form of the tubes, with their divisions, so large an amount of radiating surface.

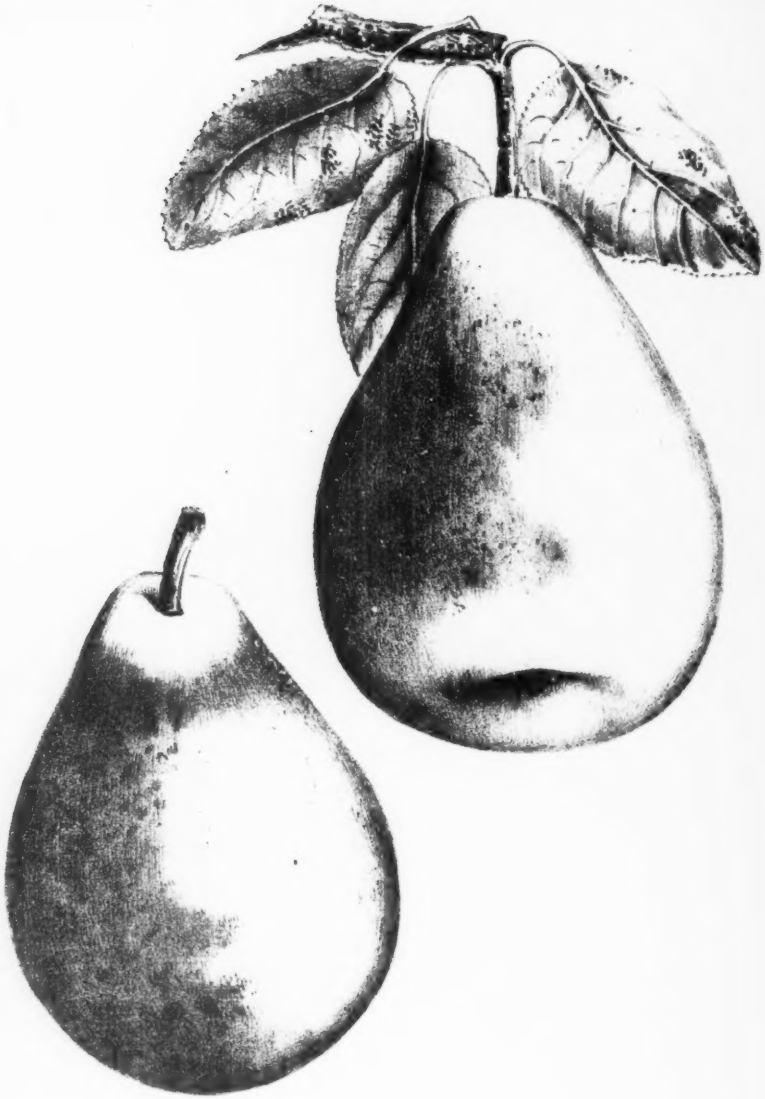
Fifth—It is *durable*, has *few water joints*, DOES NOT LEAK, needs *no repairs*, is *easily managed*, requiring fuel but twice in twenty-four hours, does not shrink nor *injure the furniture and the woodwork of the building*, AND CAN NEVER SET THEM ON FIRE.

Sixth—It is the only apparatus yet introduced, by which *Conservatories*, *Green Houses*, *Forcing Pits*, &c., can be kept with little care, at an even temperature, and, at the same time, admit of ventilation, which will furnish an atmosphere as *pure* and *fresh inside as outside:* so that *Fruits*, *Plants*, &c., may be grown as *high colored* and *well flavored* as in the open air.

Seventh—This HOT WATER FURNACE has been in *successful operation, and gives perfect and entire satisfaction.* We refer to the many testimonials received, and solicit an examination of our apparatus. Full estimates and plans given, and all work executed *promptly*, and personal attention given to the same, by the proprietor

GEORGE L. CANNON,

Dec. 1859, 12mos. **54 East 13th Street, New York.**



NEGLEY PEAR.

for THE HORTICULTURIST,

Published by C. M. SAXTON, New-York.